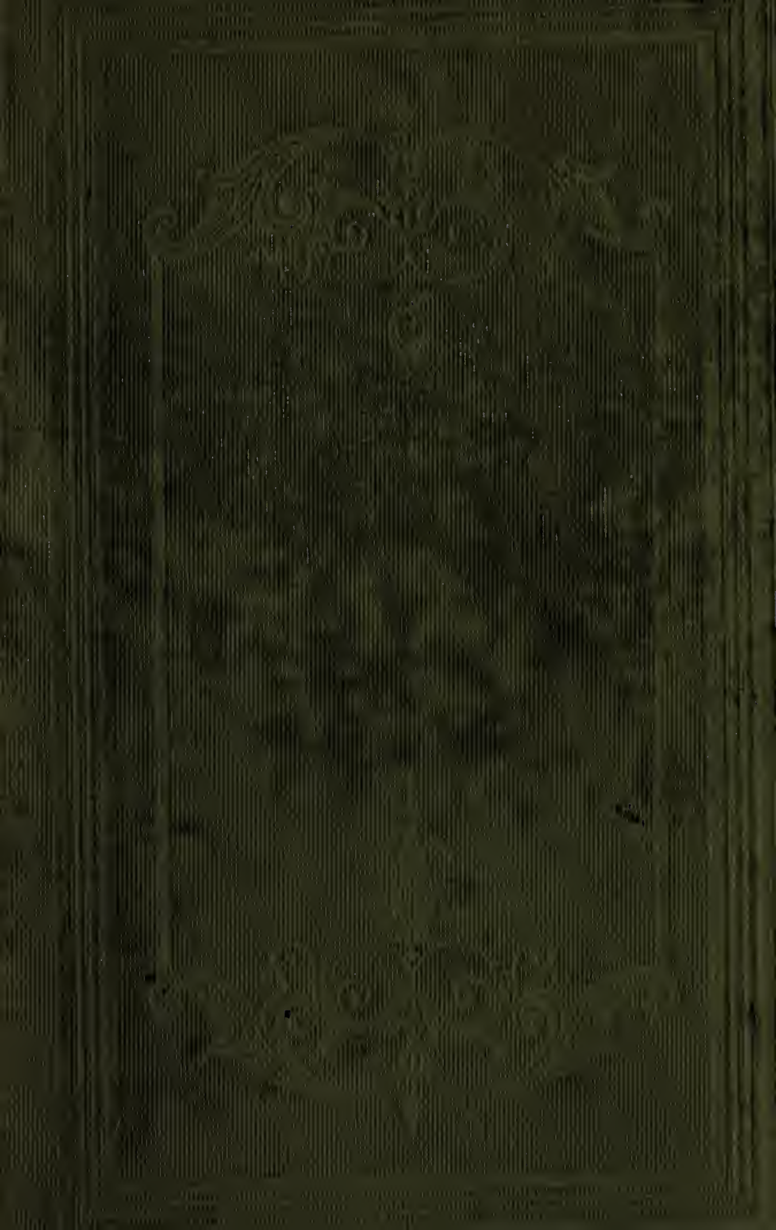

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OBSERVATIONS

ON THE

CAUSES OF DISEASE,

AND

THE MEANS OF PROMOTING HEALTH.

BY

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"I never see a fashionable doctor mysteriously counting the pulse of a plethoric patient, or, with a silver spoon on his tongue, importantly looking down his red and inflamed gullet, but I feel a desire to exclaim, why not tell the poor gentleman at once: 'Sir, you've eaten too much: you've drunk too much; or, you've not taken exercise enough.'" *Bubbles from the Brunnens, &c. By an Old Man.*

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PREFACE.

It is now all but universally admitted that the increase of general knowledge promotes general happiness, and that the illumination of mystery by the philosophical development of truth is the best safeguard against error and imposition.

The diffusion of proper notions of animal life, and its dependence upon external circumstances, becomes obviously more paramount in importance as population increases, and cities multiply; nor are sound general opinions of wholesome and proper habits of living less so, for sickness and premature death are but the results of a series of phenomena which preceded them, and may be viewed as so many indices to a catalogue of miserable antecedents arising generally from ignorant self-abuse, privation, or defective police. Truly do the Scriptures say, "man lives not by bread alone." Fresh air, a proper provision against the effects of atmospheric changes, a prospect of continued comfort and cheerful recreation, are as essential to the healthy continuance of organic life as the bread we eat.

Considering the innumerable accidents to which we are hourly exposed, and the unnatural excesses into which ignorance and folly often lead us, it is matter of just surprise that the average amount of health should predominate so much over that of disease; and if we add to this the want of circumspection which obtains in our general habits and modes of living, the surprise will necessarily increase in proportion to the estimate our intelligence enables us to form of the escapes we make from the dangers prepared by ourselves.

Formerly the great bulk of the community gave themselves little trouble how they lived; and when overtaken by pain or sickness, they turned their bodies over to the physician as we deliver a timepiece to a watchmaker to be cleaned and repaired, and who proceeds to the performance without apprehending that its owner will be at the trouble of thinking or reasoning upon the method which he judged to be the most proper. In our day the multitude prescribe for themselves, and for each other; the consequence is, that few know whether they are healthy or diseased, or whether they are doing good or ill by their haphazard prescriptions; they rely on chance, instead of science and the physician, and console themselves with having exhausted all other resources before resorting to this alternative. These extremes are equally condemnable and dangerous; a rational medium should be devised: our own preservation and happiness require it; for, with the progressive increase of population and luxury there is an evident decrease in the physical energies of our constitution, which requires that we should reflect upon our relative condition, and acquire correct ideas of the laws of health, and the best modes of obviating and removing disease; but the latter should never be attempted without demonstration, without a knowledge of the cause of its presence, and of the nature and peculiarities of the constitution upon which it is operating. He who cannot discover these, or comply with their indications, may act from motives of benevolence, but his success in repelling or curing diseases will remain exceedingly problematical. So long as we continue ignorant or unconcerned with respect to the causes which influence health and disease, we are in danger of doing too much or too little, either of being anxiously parsimonious or prodigally wasteful of those powers by which life is supported. Nature teaches us the medium of just economy;—being an integral part of her great system, we must follow her example, and draw wisely, not extravagantly, upon her resources.

All men, it is true, have not sufficient time and opportunities to acquire an accurate knowledge of Nature; but those are inexcusable who are entire strangers to her ordinary operations in their own persons, such knowledge being indispensable to a proper co-operation with her beneficent efforts in the maintenance of health.

These and such considerations have induced me to submit my "Observations" to the tribunal of public opinion. My subjects being of general interest, and my object general utility, I will rely upon the intelligent and courteous reader for that consideration which in these days of philosophical inquiry and literary fecundity is so generously awarded to benevolent motives.

I do not affect to promulgate any theory at variance with established principles, or to offer any thing new to the professors of medicine, but merely to concentrate within the smallest possible limits the best digested exposition of medical science having reference to certain vital processes, bodily conditions, and modes of living, and to deduce thence such practical inferences as can with safety be applied by the general reader to the conservation of health and the prolongation of life.

I have aimed at simplicity of style,—to render myself intelligible to those who have had no regular technical instruction on the subject of their own physical being, and the means of obviating the penalties inseparable from an infringement upon vital laws. I have considered habit, diet, air, exercise, sleep, &c., as important agents in the economy of life and health, and their study as a duty incumbent upon all who hope to enjoy them. Those who expect to find my maxims burdened with descriptions of diseases and methods of curing them, will be disappointed. I consider all attempts to render *the practice of medicine* familiar to the uneducated, not only foolish but dangerous, for if the experienced physician has difficulty at times in deciding upon what he should prescribe, what infinite mischief must be daily done by popular medical dictionaries and guides to health, and by the use of empirical nostrums recommended indiscriminately for the removal of all maladies.

It is not by the immediate inapplicability of drugs ignorantly administered, and the operation of prejudice, fashion, or indifference, that the consequent amount of evil is at all times to be estimated, for by procrastinating necessary measures, the period of cure is allowed to pass, or the affection to establish a hold upon the system which no subsequent treatment can remove. My little book, therefore, is not intended to supersede the physician, or to teach patients the use of physic; on the contrary, I am solicitous to delineate the causes of disease as beacons to their avoidance, and to impress the general reader with a proper sense of the respect due to the profession. Indeed the precepts of a physician are such as every unprejudiced well-informed person would observe; for as the true servant and interpreter of nature, he prohibits nothing that is compatible with either health or happiness.

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ERRATUM.

Page 39, line 3, for *wealthy*, read, "weakly."

PRELIMINARY OBSERVATIONS.

It is incumbent upon all who wish to enjoy an indemnity from pain and sickness, to acquire a knowledge of some useful principles of action applicable to their own guidance—to learn something of the physiology of the several organs essential to life and health, as well as of the pathology of disease, and the sanative processes by which nature co-operates with the remedial agents employed for its removal. Nor should the mental or moral causes of certain affections—the reciprocity of sympathies between the intellectual and physical portion of our constitution be overlooked, for, among the numerous sources of human affliction, there is none more prolific than the withering influence of a morbid mind, nor a cause so likely to produce this retributive misery, as the violence we ignorantly, or wantonly do to the natural laws, by which the health and harmony of the animal economy are effected and maintained.

Fortunately for the well-being of society, the study of medicine is becoming daily more influenced by a consideration of these laws, and the presence, prevention, and removal of disease are beginning to be viewed in connexion with the observance, neglect, and violation of the principles upon which the healthy continuance of organic life is known to depend.

Man alone, of all sentient beings, with the exception of such as he presses into his service, is the subject of disease. The inferior animals are strangers to the causes of premature decay—free alike from anticipated evils and galling reflections; they fear not the ills of to-morrow, and those of yesterday are forgotten; nature places them in climates adapted to their constitutions and instincts, where their appetites find ready means of gratification. They imbibe the food which their wants and feelings impel them to seek, and no more than appeases hunger. They violate no primordial law—their lives are happy, and their deaths painless. But man having long ceased to hearken to the dictates of nature and the teachings of experience, has created for himself new appetites and new feelings, the gratification of which has entailed upon him and his posterity, "a frail and feverish being," exposed to the continual danger of pain and sickness, and to an untimely and unnatural death.

If these evils be, as I think them, adventitious to human life; if they be opposed to the physiological enactments on which it is based, and to the beauty and harmony of creative design, it becomes an inquiry of the last importance, whence they arise, and how far they may be obviated by returning to first principles—by directing our steps back to the science of nature, and attending to her dictates in the application of her laws.

Instinct is not, as is generally supposed, peculiar to the brute creation. It is a principle common to the animal world, but in the general perversion of our faculties we are unable at times to distinguish between its impulses and those which are accidental. The appeals of nature are nevertheless at all times true to the purposes of life, health, and happiness; and therefore when these are silent or doubtful, and that we have difficulty in fixing the precise boundary between them and the provinces of custom, we should wisely take counsel of the analogous instincts of other animals, particularly those of the savage portion of our own species. We should never in fact cease to consider nature as the highest authority, and adaptation to her laws as the proper standard by which to regulate our management of both health and disease.

That the reader may more readily comprehend the tenor of these observations, and my subsequent allusions to vital and medical agency, I would briefly premise, that the brain is the organ of all nervous energy*—of physical and intellectual capability—the great *commune sensorium*, or receptacle of emotion and feeling, which are either generated there, or are reflected from all parts of the system by means of the *cerebro-spinal* nerves, which the brain sends forth and distributes to all the organs and tissues of the body, and which being extensively ramified over the parts acted upon, whether by instinctive impulse or material impression, convey the intelligence at once to the brain. This explains how parts situated at considerable distances, as the brain and the stomach, sympathise with each other, and exercise such a malignant influence in their reciprocal action during the existence of local disease. The mutual sympathy between, and dependance of the several subordinate parts upon the stomach and mind, have been matter of constant observation from the first dawn of knowledge to the present day. No drug, however potent, can produce the extraordinary effects which are known to arise from these causes. Disorder the stomach, and body and mind will become unnerved; pour in an invigorating cordial, and they will be instantly restored. Anxiety will deprive the mouth of its taste, and the stomach of its digestive powers. A sudden piece of news

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* My observations being addressed more to the popular than to the professional reader, it may be necessary to explain to the latter, that although I speak of the brain as a

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single organ, I would be understood to include the spinal cord. I deem it unnecessary to enter into a minute description of the respective offices of the sensory and motor nerves, other than that the former, as the name implies, are nerves of sensation, and the latter, nerves of motion.

will cause fainting, and an imprudent word will stop labour pains.

In what manner this sympathetic association takes place, we are unable to explain; but the fact is certain, and therefore we shall not waste time in exploring the rationale; it is enough for all practical purposes to know, that the co-operation of the brain and nervous system is necessary for the production of appetite, and that a direct sympathy exists between the stomach and brain, and all other parts of the body. It is this knowledge which regulates the judicious exhibition of medicines; one class of which it directs to the head, another to the stomach, a third to the intestinal canal, a fourth to the skin, and so on; this classification being based upon the changes, effects, or results produced upon the functions of the parts acted upon.

The art of exciting, and directing the laws of sympathy, between the several tissues and organs of the body, furnishes one of the most important studies of the physician. It is often necessary to increase the tendency of this sympathy, or to diminish it, and it is frequently required to excite it, when nature, overpowered by disease, is incapable of reaction. It is thus, that by inducing counter irritation, or action, in healthy parts or organs, diseases are relieved, or removed, in remote though sympathising organs or parts. It is thus, that the physician can command the functions of human organism generally, and that he is supplied with so many valuable resources by which, if he cannot always destroy the causes of disease, he can frequently attack morbid lesions with success—combat the prevailing symptoms which threaten to prove fatal; and by opposing a medicinal to a pathological disturbance, restore the proper balance of the several powers, and arrest the further progress of disease. But although an infinitely wise FIRST CAUSE, permits us to know the phenomena, by which we can judge how to avail ourselves of the means, to regulate the complicated apparatus which HE has endowed with life; HE has set boundaries to our discoveries, by withholding all knowledge of the ultimate principle upon which organic life depends. We may describe the functions and motions, and analyze the component parts of the human fabric—we may judge of the deviations from primitive laws which occasion diseases, and even direct the process by which nature combats the injuries done to her institutes; but we know not how the embryo in the womb acquires the sentient and vital properties, or determined consistence and form, by which the future man is distinguished: here our philosophy fails, and the imagination is left to infer theories, which a subsequent knowledge of the facts of first principles successively dissipates, as being but so many proofs of the pride, ingenuity, and impotency of the human understanding.

OF THE NERVES.

I have already stated generally, that the brain is the great centre of the nervous system, and the receptacle of all impressions made upon the external senses;—in other words, it is the medium which associates mind with matter,—the especial seat of perception—the source from whence spring the purposes of the will and the manifestations of the intellectual powers.

The nerves are essential to various important purposes; some of them belong exclusively to the organs of sense; others convey the commands of the will to those muscles which are under its influence, or, transmit impressions from external objects to the seat of perception, while others again govern those motions which are purely instinctive, or are rendered subservient to the purposes of organic life.

The nerves are divided into three great systems, or sets, which communicate and interlace freely with one another. The first proceeds directly from the brain, and is called cerebral; the second proceeds from the spinal cord, which may not unaptly be viewed as an elongation of the brain itself, and is termed spinal; and the third which proceed from certain ganglia,* (each constituting a small brain in itself) is termed sympathetic. These nerves, either separately or in conjunction with one another, diverge out into numerous branches, which extend to, penetrate, and influence all parts of the body, endowing it with the mysterious properties of sensation, motion, and animal organism.

Injuries done to particular nerves, directly affect the condition of the organs or parts which they unite with the centre of nervous power. Thus, if a certain nerve between the stomach and brain be cut across or compressed, so as to arrest the flow of nervous influence, the feelings of hunger and thirst and the processes of digestion and assimilation will be impaired; again, if the nerves of communication between the organs of sight, hearing, taste, &c., and the brain, be divided, these senses will in like manner be paralyzed, while the organs themselves in all other respects will remain apparently perfect. A similar law obtains with regard to the nerves which pass out through the intervertebral foramina of the spine to the muscles of voluntary and involuntary motion; hence palsy, nervous pains, &c., affecting certain localities, while others enjoy an indemnity from them.

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* A ganglion is a small mass of nervous substance, placed upon, and uniting filaments of nerves throughout their course. All parts receiving blood-vessels, and more especially the organs of digestion, are abundantly supplied with ganglia, so that by their intervention those parts have an extensive connection with the brain and spinal marrow, and also with each another. They are a kind of secondary centres of nervous power, or media through which the several energies are concentrated for effecting particular purposes requiring such co-operation.

The habits of the mind influence the nerves which bias the muscles of facial expression, insomuch that the countenance of some individuals acquires the impress of the predominating passions which govern them. Thus we are unconsciously impressed with certain notions regarding the dispositions of a person we see for the first time. These notions are often however erroneous, for an infinitude of circumstances are continually operating to control and modify the manifestations of immediate feeling.

On surveying the various important functions of the nervous system, and its intimate connection with all the movements and operations of both mind and body, it is astonishing that its derangements are not more frequent and extensive than they are, considering the interruptions to its purposes, which are daily occurring in the artificial usages of civilized life.

OF THE MUSCLES.

Muscles are those distinct *fasciculi* or bundles of fibres known by the name of flesh. They are disposed of in various forms, sizes, and positions throughout the body; and it is owing to their innate susceptibility of contraction, and relaxation that all motions of the body are performed—that animals are enabled to re-act upon the external world—to effect those movements so essential to the performance of several other functions, and to fix their attitudes, and vary their positions and gestures. The distinguishing character of muscle, is essentially vital; consisting in this innate susceptibility, and a sense of accommodation, by which we are enabled to apportion the degree of contraction, to the effect required. Thus we do not use the same effort in raising a small, as we do in raising a heavy weight. We here recognise a *source*, not a mere *application* of power—an ultimate physiological fact admitting of no explanation.

In the natural and healthy state of the muscles, these actions are under the control of the will, with the exception of the heart, stomach, intestines, and some other muscles called *involuntary*, which act whether we will it or not; Nature having interdicted processes which are essential to the preservation of life, from being in any way interfered with by the will of the animal. The voluntary motion of muscles, on the contrary, proceeds from an immediate exertion of the active or instinctive powers of the will. Thus, the mind directs the arm to be raised or depressed, the knee to be bent, and the tongue to move; but it cannot command the heart to be still, or suspend the operations of nutrition and assimilation.

Every muscle of the body is endowed by means of nerves, with a peculiar sensibility which is best adapted to its structure, and the purposes of its existence. These nerves convey sensations from the point on which impression has been made, to the brain or seat of perception. The mind again, having determined an act, its mandate is issued forth from the brain to the respective muscles required to carry it into effect. These commands are transmitted and responded to, with the celerity of lightning.

The stomach and intestines contain a large proportion of muscular fibre, the action of which affects the intermixture and propulsion of the contents of these cavities, in the manner best calculated to favour the chemical changes, to which they are subjected, and to extract from them, all the nourishment they may contain. In like manner, the tubular vessels which transmit fluids are endowed with muscular properties adapted to the performance of that office. The heart is a strong hollow muscle, with power adequate to propel the blood with immense force throughout the whole system. The quantity, and even the quality of the several secretions, depend upon the conditions of the circulating media, and are therefore resolvable into the effects of a muscular power.

Muscular power supposes the free exercise of the brain,—the nerves which proceed thence to the voluntary muscles, as well as of the muscles themselves.

The action of a muscle can only continue for a limited period without producing a sense of weariness increasing to pain. To remedy this inconvenience, nature has ordained that but few muscles act at the same moment of time, which accounts for the short period we are able to remain in one position. Successive changes of posture afford time for one set of muscles to rest, while the others are active.

Nature having designed us for a life of activity, our bodies are constituted with a view to this design; for, if the muscles are not exercised they become flaccid, attenuated, and weak, and of a consequence the nerves and blood-vessels so extensively ramified over and throughout the muscular fibre, for the purposes of growth, and the supply of waste and vital energy, lose their *vis plastica*, or creative properties, at the expense of the harmony and health of the combined systems of the whole animal economy.

OF TEMPERAMENT.

The ancients believed in the existence of four cardinal humours, the predominance of one or other of which gave rise to four distinct *temperaments*, viz., the *sanguine*, the *choleric*, the *phlegmatic*, and the *melancholic;* modern physiologists have added a fifth, which they denominate the *nervous* temperament.

The doctrine of the temperaments is raised upon hypothetical ideas, and is supported by conjectural reasoning; like phrenology, it may have truth for its basis, but the details are exaggerated and unsatisfactory.

The " sanguine temperament" is distinguished by a ruddy complexion—animated countenance—hair a pale chesnut colour, passing into some of the lighter shades of red—blue lively eyes—skin smooth, white, and soft—habit plump and rounded—shape good—nervous susceptibility keen—impressions transient—memory prompt—imagination lively—fond of pleasure—head, hands, knees, and feet small—neck rather sunk—shoulders broad—chest large—muscles well marked and powerful.

The " choleric or bilious temperament" is characterized by premature development of the moral faculties—a large liver—strong hard pulse—prominent veins—skin brownish, inclining to yellow—dark hair—moderate fulness of flesh—firm and harshly expressed muscles—abrupt, violent, and impetuous passions

— firmness — inflexibility and daring — constancy—activity—courage and perseverance.

The "melancholic temperament" is marked by sluggishness of the vital functions—coarse, sallow, blueish skin—black hair—dark deep-set eyes—hard, meagre habit of body—measured and circumspect gait—slow, cautious, and timid mind—tenaciousness of all emotions, when once excited—constancy—firmness—desire for revenge—uneasy, gloomy cast of countenance—suspicious disposition and fearful imagination.

The "phlegmatic, or lymphatic temperament" is distinguished by soft flesh—fatty depositions in the cellular tissue—pale face, devoid of expression—fair hair—weak, slow pulse—memory treacherous, and attention not continuous—slothfulness of body and mind—languid imagination—weak passions—moderate desires, and little enterprise.

The "nervous temperament," consists in the morbid increase of the sensibility to the impressions made upon the several organs of the body and mind. This temperament may be superadded to any of the others, being seldom natural or primitive, but commonly acquired by inactivity—habitual indulgence in sensuality—perverted function of brain, from reading works of imagination, abuse of music, &c. It is expressed by small, flaccid, and attenuated muscles—vivacity of the sensations—suddenness and mutability of the decisions of the judgment, and a disposition to spasm.

This temperament, like the nervous affections which result from it, is the effect of that state of civilization which in man is farthest removed from that of nature.

However hypothetical and unsatisfactory the data may be, from which the doctrine of the temperaments is inferred, there can be no doubt of the actual existence of those states of the constitution which they describe, and of the influence they exert in modifying the character of disease and the operation of medicines. In the sanguine temperament, for example, there being an increased susceptibility of the nervous system, and of impressions generally, and consequently a predisposition to inflammatory action; stimulating food and medicines ought to be used with great caution. The choleric or bilious temperament, in like manner, contra-indicates the indiscriminate use of stimulants, and irritants; and predicates derangement of the liver, and the occasional use of emetics, and antibilious medicines. The melancholic temperament, on the contrary, will require diffusible stimuli, nourishing food, and evacuants, combined with tonics. Alteratives and aromatics will be better suited to the phlegmatic; and antispasmodics and chalybeates to the nervous.

Generally speaking, in similar stages of the same affection in two individuals of different temperaments, the medicine and treatment that would do good to the one, might be highly injurious to the other.

OF IDIOSYNCRACY.

Idiosyncracy is a term implying a peculiarity of constitution, in which a person is affected by certain agents, which, if applied to the generality of individuals, would produce a uniformly different effect, or none at all. These peculiarities manifest themselves in different ways, at one time in the organs of sense, at another in those of digestion. The appearance, smell, touch, &c., of certain objects, will at times produce sickness and fainting; and articles of food generally harmless, when taken into the stomach in peculiar cases, are followed by eruptions on the skin, or other morbid symptoms.

Medicines sometimes produce the very opposite effect to that intended, and some medicines in common use, are found in particular cases to be totally inadmissible—in others, to require great modification in their employment.

There are circumstances connected with the pulse also, which it may be important to know: In some individuals, the position of the body has a greater influence on the force and frequency of the pulse than others. Some have a habitually slow, others a rapid pulse; and in some again, the pulse is irregular, or intermits. I know a young lady whose pulse intermits in health, and becomes regular on the supervention of disease.

It is of consequence that physicians, in prescribing for individuals with whose peculiar habits or idiosyncracies they are little if at all acquainted, should discover, or be informed of their existence and character; otherwise the most serious, and even dangerous results may follow. It is nevertheless obvious, that even with the advantages of this knowledge, such peculiarities, arising as they do, from inappreciable causes, oppose the most absolute and inevitable difficulty to the aptitude of medicines for the cure of disease, and that no analogy—no accumulation of instances in such cases can insure an indemnity from the chance of erring.

OF PERSPIRATION.

Perspiration is the vapour which passes off through the skin: it is distinguished into sensible and insensible, and performs an important part in the physiology of organic life; not only by regulating the temperature of the body, but by eliminating noxious and heterogeneous excrements; and in counterbalancing suppressed pulmonary transpiration, and diminished secretion of the kidneys.

The quantity of fluid removed from the body of a healthy adult by means of perspiration, is affected by a variety of circumstances; and has been variously estimated at from one, to three and a half pounds, in the twenty-four hours, according as any of these circumstances operated, while the calculation was being made. There are other circumstances also, wherein perspiration may not only be partially suspended, but a great amount of circumambient fluid absorbed. Dr Keil has proved by experiment, that his body attracted 18 oz. of moisture in one night, while he was asleep; and Dr Robertson found, that he grew heavier in damp weather, although he had taken less aliment. Indeed there can be no doubt, but that the condition of the atmosphere has great influence upon the perspiration; for, when the air is dry and warm, we feel lively, and free from all sense of oppression, because the fluid exhaled is instantly absorbed and carried away by the air; but in an atmosphere of inferior temperature, already loaded with relaxing warm moisture, the matter of perspiration adheres to the skin, and the electric principle which gives tonicity and vigour to the powers of life is rapidly dissipated; hence we feel unusually languid, and are easily fatigued. This explains why night air is unwholesome, and why miasma or bad air is so very hurtful in marshy districts; and why woollen clothing is more needed in damp than in dry weather, even although the temperature should be higher.

When the atmosphere is still, the body is not cooled so fast, as when the exhalations are carried off by successive portions of fresh air coming in contact with them.

It will readily be inferred from these considerations, that the skin is an influential agent in the economy of health, it not only secretes and volatilizes noxious matter, and attracts moisture according to circumstances, but it absorbs from, or gives out to the surrounding atmosphere, certain properties necessary to health. So much is the experienced physician convinced of these facts, that when occasion requires, his first great care is to regulate the activity of the functions of the skin, its co-operation being necessary to the removal of all medicable ailments, and its peculiar organization having a direct connection with every internal operation of human life, as well as with the surrounding media, whose temperature, density, rarefaction, and other more subtle and less known qualities, are equally blended with the principles of vitality.

Heat determines the blood to the surface of the body—relaxes the skin, opens its pores, and promotes perspiration; while Cold, by constringing the skin and the vessels opening upon its surface, impels the perspirable matter to the internal parts, whence, by a wise provision of nature, it is ultimately drained, either by the kidneys, or by increased pulmonary transpiration, or both, there being an admirable balance maintained between these organs, which is constantly tending to one or other, according to circumstances. Should however, this balance be at any time disturbed, the system in consequence will become charged with the offensive effluvium which ought to have passed off by transpiration or otherwise; and derangement of more or less consequence will follow, and increase in virulence until the balance is again restored, and the internal congestion relieved by a free determination of the circulating fluids to the surface, and a copious discharge of sweat.*

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* A striking illustration of this balance between the skin and internal organs obtains in cases of superficial scalds and burns—here the secretory functions of the skin being destroyed, the fluids are determined in more inordinate quantity to the internal organs than they are capable of eliminating, and the result not unfrequently is congestion, or inflammation, terminating in death.

If perspiration be allowed to accumulate upon the skin, the sensibility of the surface will become impaired, myriads of orifices designed for the continual purification and renovation of our fluids, will become obstructed, if not closed, and vitiated matter unfit for the purposes of life, will be re-absorbed, and the general health proportionally affected. So acrid and pestiferous at times is the exudation from the skin, that it will cause water, in which some persons have bathed to become putrid; hence the pernicious effects of close-bodied air-tight dresses, and of the noxious atmosphere engendered in crowded and ill-ventilated apartments.

Perspiration exercises a highly beneficial influence in the removal of disease, and many inflammatory and febrile affections are resolved by this process, for it appears to relieve the vascular system both by depletion, and by a transfer of action from the deep-seated, to the cutaneous vessels; and even in cases where no febrile, or inflammatory action prevails, perspiration has a most salutary effect by removing morbidly-retained excretions, whose presence by deteriorating the blood, would impair the secretions essential to life and health.

OF AIR.

Atmospheric air is a compound body,—the relative proportions which its several elements bear to one another, is that condition which is most conducive to health. An increase in one of its elements called oxygen, will quicken the circulation and stimulate the functions of life; on the other hand, if there be an abstraction of oxygen, and an increase of carbonic acid which is another of its constituents, vital energy will be diminished, and headache, languor, and even death will supervene.

Atmospheric air is one of the most heterogeneous fluids in nature, being impregnated with all manner of substances capable of fusion by fire—volatilization by heat—or solution by water. Its ever-varying properties, impregnations, density, and temperature, must therefore influence in a high degree the functions of organized life.

The variability of temperature and electrical changes to which the atmosphere is liable have not been satisfactorily accounted for. This, however, forms no part of my enquiry; the object at present is to trace their operation on the human body, and to point out the most practicable means of obviating their effects.

When pure air is respired, it gives off to the blood a great proportion of its oxygen, together with certain electro-magnetic properties not clearly understood, which are replaced by carbonic acid, and then expired. The vital portion of air being thus consumed, and its place supplied by gas of a noxious quality, it follows that a constant renewal of air is indispensable to healthy existence; and therefore it is provided that a body of air equal to 1,152,000 cubic inches should pass through the lungs daily, of which they are supposed to contain about 320 cubic inches after a free inspiration, and about 280 after expiration; from which it appears that seven-eighths of the air received into the lungs remain for the purposes of life, and of the one-eighth expired, no less than thirty cubic inches of carbonic acid or deleterious gas is evolved every minute,* individuals thus become the centre of a little atmosphere of unhealthy air surrounding themselves, which, in crowded, small, and ill-ventilated dwellings, where it is allowed to accumulate and concentrate, exercises a most destructive influence upon the animal functions.

Lavoisier found at a theatrical entertainment, that before the play began, the air contained the following proportions of its usual elements:—oxygen, 27 parts, nitrogen or azote,

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* There is much discrepancy of opinion on this subject, owing to the difficulty of forming a precise estimate. Allen and Pepys, whose experiments are considered very correct, fix the average amount of carbonic acid gas thrown out daily by every adult individual, at 23 cubic feet.

73 parts, total 100. But near the conclusion of the performance the amount of oxygen was diminished to 21 parts, and the azote increased to 76½. The remainder was transformed into carbonic acid, or fixed air; hence the vital principle was diminished nearly one-fourth, and in the same proportion was less fit for the purposes of life, besides the pernicious influence of the carbonic acid accumulated in it.

Some of the excrementitious portions of the blood, as well as other offensive matter belonging to the body, pass off in an aeriform or vaporous state with the breath. In this way the poisonous miasm of contagious diseases is communicated to a person in health.

The baneful influence of breathing vitiated air may be slow, and imperceptible for a time, but it will not the less surely effect the deterioration of the whole system, and predispose to disease.

It is not generally known, the extent of the injury done by the companionship of pets, such as dogs, cats, parrots, &c.; they abstract much of the vital principle from air, and render it both unpleasant and unwholesome. Plants also during the night, and in the absence of solar heat and light, attract oxygen, and disengage carbonic acid, and are therefore dangerous inmates of a bed-room; but when exposed to the rays of the sun, they afford a very pure dephlogisticated air, or oxygen, which renovates air although rendered mortal by the phlogistic or disoxygenating processes of respiration, the burning of fires, or the putrefaction of dead substances.

It has been ascertained by calculation, that one person consumes the oxygen, or vital principle contained in five cubic feet of air every hour. If, therefore, one hundred persons were confined in a public room thirty feet square, and of equal height, the whole of the air in the room if not renewed, would be consumed in less than five hours, and faintings and death would ensue among the inmates. No wonder then that those who frequent crowded assemblies should be afflicted with diseases, or suddenly cut off from life; for in addition to the abstraction of the oxygen from the air, one person is obliged to breathe the offensive exhalations expelled as a nuisance from the skin and lungs of another.

The aggregation of a multitude of human beings in one spot, is the most common cause of impairing the healthful properties of the atmosphere; hence the insalubrity of the air of crowded cities, and the consequent increased mortality when compared with that of rural districts. In the former, the effluvia arising from putrefying animal and vegetable substances, the products of combustion and smoke, with all the noxious exhalations man's occupations and habits assemble around him, are allowed to accumulate and concentrate, from defective light and imperfect circulation of pure air; but in the latter, all destructive emanations speedily mix with the currents of the atmosphere, and are diffused and carried away, while the pernicious effects of combustion, putrefaction, and respiration, are counteracted by the vegetation of plants.*

The radiation of heat from the earth, and the property of diffusion bestowed upon gaseous bodies, in like manner counteracts the deleterious effects of contaminated air; and the anomalous diseases, affecting such as are obnoxious to the influence of these accidents, are but the results of their varied nature, and intensity acting upon different constitutions, under different circumstances.

Rousseau designates large cities the graves of the human species, which he says, would perish in a few generations if not recruited from the country. In fact, pure air is to human life as essential as pure water is to that of fishes, and every one who wishes to enjoy health, must make it a rule to breathe the fresh open air at least two or three hours daily. This I conceive to be an indispensable law of health that cannot be infringed with impunity. I admit that many persons live to old age even in large cities who do not breathe the fresh air for half that time daily; but how do they live? certainly not in health and comfort, but enervated in mind and body, frequently complaining, and continually oppressed with lassitude, weariness, and depression of spirits.

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* The relative advantages of town and country will be more clearly understood by the following estimate, which is founded upon the most accurate research :—In great towns, one in twenty die annually. In moderate sized towns, one in twenty-six. In villages, one in forty. And in the open country, one in sixty.

Too much sensibility in regard to all the impressions and variations of the weather is one of the most frequent sources of disease, those who are constantly in the open air disregard both cold and heat, and are but little affected even by wet, whereas those who are seldom in the open air, sensibly feel all changes in the weather, and every exposure to extraordinary cold, or a little wet or damp is apt to check their perspiration, already deficient, and to occasion cold in the head, and general indisposition; and in how many instances this morbid sensibility of the surface of the body paves the way for inflammations and consumption, is too well known to require any comment.

This cursory sketch will shew the importance of continuous change of air, and the necessity that exists for the free ventilation of occupied apartments, and for avoiding crowded, and such other places as contain air divested of its vital attributes, or impregnated with unwholesome properties.

OF DIGESTION.

The stomach in man is endowed with an accommodating contractile power, which enables it to adapt its capacity to the volume of its contents. It has also a motion peculiar to itself, by which the aliment is amalgamated with the juices secreted for the purposes of digestion. This motion is modified or accelerated by the more or less stimulant nature of the ingesta—the state of health—and by age and exercise.

Our food being derived from the animal or vegetable world, has consequently undergone a previous preparatory organization. It is subsequently reduced to a new condition by the process of digestion and admixture with the fluids of the stomach, and is ultimately assimilated to our constitution.

The blood-vessels of the stomach are influenced by the energies of its functions; "*Ubi stimulus ibi affluxus;*" wherever a stimulus is, there will be an afflux; this law applies to the brain also, and to the system generally.

As soon as digestion commences, the blood flows with increased force to the organs destined for its completion. This determination of the fluids from the surface is attended by a feeling of chilliness, and a diminution of the insensible perspiration; but as the process of concoction advances, a reaction takes place, and after it has been completed, the functions of the skin return with greater energy; the body feels elastic and renovated, and an instinctive desire for activity supersedes the drowsy feeling which accompanied the early stages. This feeling, which implies merely muscular exercise when mistaken for an indication of renewed vigour and health, is too frequently responded to by mental exertion, sensual indulgence, or indolence, as inclination and circumstances may chance to direct, and which is sure to be followed by imperfect assimilation and defective nutrition.

Any part, or the whole of the animal body, when in a state of exercise, requires an augmented flow of blood to sustain its increased action, and repair its consequent waste, for from the commencement to the termination of life, the component parts of the human fabric are ever changing,—constantly receiving fresh accessions of new matter, and throwing off the old and decayed particles no longer fit for the purposes of conservation.

The constitution of the stomach has a direct relation to undigested food, which is its natural stimulant. When the stomach, from disease, accident, or design, contains any substance it is unable to convert into healthy nutriment, a distinct uneasiness is felt, and an effort made to expel it upwards by vomiting, or downwards by the bowels, hence the action of emetics, and of bile in the stomach. The bowels, on the contrary, are constituted with a relation to digested food, and consequently when anything in an undigested state passes into them, it irritates them, producing colicky pains and bowel complaints.

In addition to the gastric juice which mixes with and digests the food, the stomach is furnished with an inner or villous coat, the follicles of which pour out a bland mucous secretion for the purpose of lubricating and protecting the nervous papillæ diffused over its surface. This membrane during fever, strong mental emotion, excitement by stimulants, and an over-loaded state of the stomach, becomes altered in its functions, and ceases to yield the bland protecting fluid referred to, thereby exposing the nerves to undue irritation, in which the brain sympathises, producing uneasiness in the region of the stomach, dryness of the mouth and fauces, want of appetite, and many other disagreeable symptoms.

The gastric juice by its solvent action, aided by the churning motion of the stomach, converts the food into a pultaceous mass called *chyme*, which is immediately forced, by the contractile power of the stomach into the first passage, or *duodenum*, where it meets with the bile from the liver, and another juice or secretion from a large fleshy gland *(the pancreas)* situated immediately below the stomach. A more advanced stage of the process of digestion is now perfected. The nutritious portion of the *chyme* is separated from the residue, assuming a milky colour and consistence, and is termed *chyle.* The *chyle* is sucked up by innumerable small vessels, *(lacteals)* which are spread over the inner surface of the bowels, and is conveyed by them through a series of lenticular-shaped bodies of various sizes, *(the mesenteric glands)* to one common receptacle, *(the thoracic duct)* which communicates with a large vein, *(the subclavian)* as it approaches the right side of the heart, where it is mixed with the general current of the blood; it passes thence to the lungs, where it is subjected to the influence of the atmospheric air, when it becomes converted into nutritive arterial blood, after which it returns to the left side of the heart, and is distributed by the heart's muscular action, its own vitality and the contractility of the arteries, to supply nourishment and support to every part of the body. The excremental residuum left in the *duodenum* and small intestines descends into the lower bowels, where it undergoes further changes, receiving in its descent the addition of the waste matter rejected by the blood after serving its purposes in the system, and is ultimately thrown off by the emunctories.

The purposes of digestion being evidently to furnish materials for the growth and support of the body, it follows that any cause operating to impede these purposes will deteriorate the blood and impair the functions of the organs it supplies. The impediments to proper digestion and the formation of a sufficient supply of nutritive chyle may arise from various causes; the organs engaged in the process may be either imperfectly, or overstimulated by improper quantity or quality of food, by constitutional peculiarities, or by disease, but whatever be the cause, the effect uniformly is defective nutrition, impoverished blood, and bad health.

The human body being susceptible of immediate and constant repair, and the means supplied being so very adequate to this end; it is one of the inscrutable mysteries of nature why it should ever wear done—why muscles, nerves, vessels, and organs, capable of renewal, should become incapable of their several functions, and be resolved into the simple elements of inorganized matter. We only know that such is the fact, and thence infer, that by a law of the Creator, a certain measure of vital energy is apportioned to animals, subject to accidents, which may affect its influence and shorten its duration, and that its final exhaustion is the boundary of life. We cannot add to the original grant, by protracting the allotted period of human existence; we can but husband its resources, and cherish the means by which it is supported.

OF EXERCISE.

It is obvious, from the constitution and arrangement of the whole human fabric, that man was created for activity and exertion. Nothing can exceed the admirable adaptation of our different parts to flexibility and ease of motion; and no truth can be more clearly established, than that the health and strength of both body and mind, as well as our means of subsistence, depend upon the proper application of the powers of mobility with which nature has endowed us.

From what has been already said of the important function of digestion, it is evident that it could not be perfectly or adequately performed, unless the parts concerned were stimulated to the necessary assimilative motions. Bodily exercise supplies this important necessity. It is the mean which nature uses to the end, of preparing the digestive secretions—of promoting the absorption and the incorporation of the elementary juices with the system—of circulating the blood, and enabling it to imbibe the vivifying influence of the atmosphere—of engendering and diffusing heat throughout the whole system, and of expelling, by means of transpiration, any noxious substances, which might disturb the functions of the organs essential to the promotion and preservation of health.

From the conservatory effects and object of exercise, it will readily be inferred, that indolence must be injurious to both health and comfort, for it not only impedes digestion, and thereby diminishes and deteriorates the necessary supplies of nourishment, but it retards the elimination of certain excretions, which are as prejudicial to health as they are destructive of that equanimity of mind essential to proper mental exercise.

In early life, exercise should be directed to promote the circulation of the fluids, and to strengthen the nerves and muscles. The body should be habituated to exposure to the weather, and to atmospheric changes. The pastimes and plays should be of such a nature as to combine energy and activity with presence of mind, grace of motion, and moral courage.

It is to be regretted that the manly exercises and pastimes of bygone years, so beneficial to health, are giving place to sedentary amusements and diversions, having no object but to consume time, and which, instead of promoting bodily strength, and relieving the mind from the anxieties of study and business, often require more thought than either the one or the other. This is the "debauchery of inaction," which carries with it no adequate remedy against the effeminating usages of civilization.

As a general rule, I hold that people should never sit still if circumstances are favourable to motion or exercise.

Of the various kinds of exercise, there is none more natural to us, or in every respect more conducive to health, than WALKING: it is the most perfect in which we can possibly employ ourselves, for, in the act of walking, every limb and muscle is in motion, and the circulation of the blood through the most minute vessels is most effectually carried on.

Walking enlivens both body and mind, and is perhaps one of the most useful remedies for the removal of nervous and dyspeptic affections. It is moreover in the power of every one having the use of his limbs, and can be adapted in degree and duration to the various circumstances and wishes of each individual.

A pure dry air, rather on an elevated ground, and at a distance from marshy and damp plains, should be selected for this exercise.

In summer, the mornings and evenings are the most proper times for walking, and in the winter, from ten o'clock in the forenoon, until one or two in the day.

Next to walking, RIDING ON HORSEBACK is the most salutary exercise. According to an old adage, "riding is the best exercise for regaining the health, and walking for retaining it." SYDENHAM considered riding either as a prophylactic or as a remedy superior to all others, and LYNCH in his "guide to health," calls it an air bath, and attributes much of its beneficial effects to the various changes of air through which we rapidly pass, and the new scenes we are constantly observing under circumstances unfavourable to severe thought or gloomy reflections.

Riding effectually exercises the abdominal muscles and viscera—it removes obstructions in the bowels—braces the relaxed energies of the frame—accelerates the circulation—emulges the liver, and promotes and expels the excretions generally without much fatigue to the body. Riding, nevertheless, will require to be modified according to the circumstances of the party using it. The strong and robust may take many liberties which would be destructive to the delicate and weakly, who must study the state of the weather, the pace of their horse, and the length of time they should use him. Their own feelings of comfort and experience of the benefit derived from the practice, will be the best criteria for judging.

Dancing, used under proper restrictions, is highly conducive to health. It also gives grace and dignity to the outward carriage, and contributes much to the attainment of that self-possession, and becoming confidence in company, which keeps the mind at ease, by feeling an equality with those around us. But as I have said, its use requires certain precautions, for in heated and crowded rooms during the night, dancing will prove one of the most prolific sources of pulmonary and other dangerous diseases.

Exposure to cold, and currents of air, immediately after dancing, must be sedulously guarded against. It requires but a moment's reflection to be convinced of the dangerous consequences of such exposure; in a moment the delicate and extensive air cells of the lungs may be subjected to an atmospherical transition of thirty or forty degrees,—from the over-heated breath of the ball-room, to the chill of the night blast. A similar degree of caution is necessary in admitting cold fluids into the stomach.

Adair, in his excellent essay on regimen, says, "excess in dancing has shortened many a life;" and it is well known that excess in labour of any kind will induce premature old age, break-up the spirits, and ruin the strongest constitution.

There are many particulars regarding this kind of exercise, as well as of every other, where the advice of an intelligent medical friend will be found of essential benefit; indeed, it ought always to be had recourse to, because exercise, however necessary, should never be carried beyond that point discovered by experience, at which waste begins to exceed nutrition, and exhaustion to take the place of strength, for the lungs will then be filled with heated blood—the balance of the circulation will be disturbed—the nervous energies overpowered—the process of assimilation suspended, and the body wasted by debilitating sweats.

The fearful train of pulmonary diseases, and the numberless deaths originating in our own ignorance and folly have no premonitory effect in obviating their continance. Love of pleasure, prodigality of life, and recklessness of consequences are unhappily too firmly allied to youth and inexperience to be easily disunited; and so long as lingering ailments and premature decay are masked under the exciting and seductive features of congregated multitudes and midnight amusements, so long will impaired intellect, physical deformity, and broken health continue to herald their victims to an untimely grave.

Friction is an exercise not generally understood, and therefore too little used in modern times, but to those who, from bodily infirmities, or want of opportunity, are prevented from taking sufficient exercise, it cannot be too much recommended.

In the East Indies, where from natural causes and defective discipline, the inhabitants are effeminate and languid, friction is much used, and is ranked by the rich amongst their greatest luxuries. By this means they second the indications of nature without fatiguing themselves.

The effects of currying on the lower animals are, sleekness of skin, liveliness of motion, and improvement in health,—the results of the aid thus afforded to the circulation, and to the efforts of nature in relieving the system of its recrements by cutaneous perspiration. Friction applied on the human body will have a similar effect; it braces and strengthens the muscles and nerves,—promotes a free circulation without much physical exertion, and is therefore well adapted to patients of wealthy and sedentary habits.

It is told of CICERO, when his health was so far impaired as to disqualify him for public business, that he retired for a time and took to diligent friction applied to every part of the body, by which means he was soon enabled to return to active life.

SIR JOHN SINCLAIR, in describing his own case at the age of 67, goes on to say, "being accustomed to retire early to bed, I was subject to waking in the night. I took advantage of these opportunities to strip off my shirt and flannel waiscoat, to jump out of bed, and to brush till I was tired, and then went to bed again. This plan answered, and my sleep remained unbroken till the usual hour of rising. It is more than a year since I began the use of the brush, and my health in general is now better than it has been for thirty years before. It appears to me that it answers the purpose of moderate and healthy exercise, assists in freeing the skin from all impurities, and keeps the pores clear and open. The harder the brushes are (I use one in each hand) the better for the operation."

The flesh brush is the most simple and efficacious method of applying friction, and I think the morning is the time when it is most required, for then the pores of the skin are loaded with acrid matter, ready to be thrown off by exercise and perspiration.

CONVEYANCE IN A CARRIAGE with closed windows, is but an excuse for dispensing with more effective exercise, and cannot be recommended, excepting in cases of great debility.* Using an open carriage is a more healthy practice, and to such as are deprived of other modes of exercise may be beneficial in very hot seasons, and in rendering invalids less susceptible to the variations of the weather.

SHUTTLECOCK is an excellent mode of exercise, and may be used by females without infringing the rules of propriety. It exercises the whole body by the attitudes it enjoins, and gives a graceful pliancy to the joints and muscles. It accelerates the circulation of the blood, and promotes salutary perspiration.

THE VOICE. Females are sometimes accused with exercising the voice unnecessarily; I nevertheless hold it to be a salutary practice, provided they choose a proper theme for indulging in this propensity, and would recommend reading aloud, singing in moderation, and speaking as a substitute for other exercise, when this cannot be conveniently had recourse to.

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* "We abound," says Dr Franklin, "in absurdity and inconsistency. Thus, though it is generally agreed, that *taking the air* is a good thing, yet what caution against it! What stopping of crevices! What wrapping up in warm clothes! What shutting of doors and windows, even in the midst of summer! Many London families go out once a-day to take the air, three or four, or perhaps six persons in a coach; these go a few miles, or take a few turns in Hyde Park, with the glasses up, all of them breathing over and over again the same air they brought out of town with them in the coach, with the least change possible, and rendered worse and worse every moment, and this *they* call *taking the air!!!*"

Delicate children should not be permitted to walk a great deal, or to over-fatigue themselves with bodily exercise. Healthy strong children, on the other hand, should not be restricted in this respect; they cannot exercise too much.

People advanced in years should not on that account remit their exercise. It may be of a more temperate description and less fatiguing, but its continuance is indispensable to health. Walking is the kind of exercise best adapted to their condition, and should be preferred to all other.

On returning from exercise in the open air, no part of the dress should be suddenly removed; heated rooms, and currents of air ought to be avoided; and if fatigued, it will be improper to indulge in solid food or cold drinks.

Although these observations upon exercise are to a great extent included in my after conderation of the periods of life to which they severally apply, yet viewing exercise as a branch of hygiene, whose advantages cannot be too strongly enforced, I have deemed it advisable to particularise under a separate head a few of those exercises most favourable to the object in view; but generally speaking, exercise in the open air, of whatever kind it may be, when properly adapted to the age and constitution of the party using it, is the most effectual means of securing health, and where this is not convenient or applicable, it should still be remembered that fresh air and fitting exercise are essential to the healthy prolongation of life, and that it is necessary some means should be adopted with the view of securing as much as possible of these prerequisites.

OF THE BLOOD.

I have stated, that the last part of the process of sanguification, or blood-making, is performed in the lungs, where the chyle undergoes a vivifying change from the influence of the atmospheric air, in the action of breathing; and that on this change taking place, it is distributed by the vitality and muscular power of the left ventricle of the heart, the contractility of the arteries, and the exercise of the contiguous or incumbent muscles which compress the blood-vessels generally, to supply nourishment, and provide the necessary secretions to the system. In doing this, the blood parts with its nutritious and vital principles, and becomes so changed and deteriorated as to be unfit for further use; it is then taken up by the veins, and conveyed back to the right ventricle of the heart, where it is churned up with the fresh supplies of chyle it receives in its passage, and on being again thrown into the lungs, it is renewed in its elements, and once more sent forth on its recruiting mission, to the several regions of the body.

Every secretion, and growth of parts is formed from, and every organ and tissue supplied with, nourishment from the blood. These organs and tissues require constant support, to enable them to carry on their respective functions without interruption. A rapid and constant circulation of blood is therefore necessary, to supply this important desideratum; and it is no less surprising than true, that a volume of blood, equal to all which the human body is supposed to contain, passes through the heart upwards of fifteen times every hour, affording another striking illustration of the admirable manner the several parts of the animal economy are linked together in their actions and sympathies.

The blood being formed by the aliment taken into the stomach, and perfected by the atmosphere we breathe, the character and quantity of these radical principles must, in the nature of things, exercise an extensive influence upon the quality of the blood which they form, and affect the healthy action of the several organs, according to the nature and extent of that influence. To illustrate this, if a ligature be applied round a limb, or any other obstacle be opposed to the free flow of blood to a given part, it will waste with a progress, equal to the force and extent of the obstruction, in like manner as plants wither and decay from inefficient nourishment; and when the blood, from impeded digestion, improper food, impure air, want of exercise, imperfect change in the lungs from disease, or other causes, becomes impaired in quality, or diminished in quantity, the whole system participates in the derangement, the health wanes, and the body wastes, in a degree commensurate with the nature and extent of such causes.

OF SLEEP.

The object and design of sleep, is evidently to renew the exhaustion of vital energy. Although many plausible theories have been advanced in reference to the adequate and proximate cause of sleep, human research has hitherto failed in reconciling its phenomena with physical causes. We only know that it is the immediate effect of the laws of organization, that it depends upon the suspension of the functions of relation, and that its regular return is one of the means which contribute most to the preservation of life and health.

The nutritive and other vital functions continue when we are asleep; the brain ceasing to act only with regard to voluntary muscular contraction and as an organ of intelligence. But it continues to influence the muscles of respiration, the heart, and nutrient secretions, in like manner as when we are awake, excepting that these movements and processes, owing to our state of repose, are more slowly performed.

Uninterrupted peaceable sleep, when restrained within proper limits, re-establishes the balance of the exhausted powers, and the facility of action in the several organs, both of mind and body, restoring to the one its vigour, and to the other its alacrity; but when prolonged beyond the time necessary for these purposes, the strength will decline, the solids become relaxed, the fluids incrassated, the body increased in fat and thick humours; memory will fail, and sensibility will in a great measure be destroyed.

Although by habit, health may continue for many years, upon the diurnal use of from four to five hours' sleep, yet it is found to be much less than nature requires, and must ultimately enfeeble the nervous system; indeed, from experiments instituted with a view of determining the necessary amount of sleep, it was found that healthy adults, on having restricted themselves to between four and five hours' sleep, became the subjects of epilepsy, or paralysis; and it has been observed, that those who sleep too little contract a violent and vindictive temper, and that long continued wakefulness is capable of changing the disposition of the most mild and gentle—of effecting a complete alteration in the expression and features of the face; and at length of occasioning the wildest deviations in the imagination, which may ultimately end in insanity.

Fatigue of the muscular system, and intense application of the mental powers, tend to prolong sleep. Sloth, and stimulating food and drinks will have the same effect. In short, as nervous energy is overpowered by an increased determination of blood to the head and consequent compression of the nervous centre; or diminished, by a derivation of the circulating fluids to other parts, so will the disposition to sleep be increased. It is thus that we can explain how sleep may result from the agency of opposite causes. Narcotics and spirituous fluids, for example, having a tendency to produce congestion in the brain, will dispose to sleep, while loss of blood, external heat, bathing the lower extremities in warm water, and filling the stomach with food, by diminishing the *vis conservatrix* in the brain, will equally induce a similar disposition.

The state of health, age, and the nature of our avocations and exercises, are the chief considerations which should modify and determine the duration of sleep.

Infancy and youth, whose life of relation is very active, have need of longer repose than adult age. From eight to ten hours' sleep are found necessary in the former, and from six to eight in the latter, more than this is hurtful. Individual deviations, however, in the constitution of the body, and its various wants, will preclude an adherence to precise rules. The more bodily weakness and nervous exhaustion we feel, the more we may indulge in sleep, provided it be refreshing; but we should always be on our guard, not to confound the requirements of nature with ill-judged customs. Most persons habitually sleep as much as possible, from a mistaken notion that they cannot sleep too much.

The custom of sleeping or lying in bed too long, if indulged at the age of puberty, is not easily relinquished in after life. Those who are not possessed of firmness to overcome this habit, instead of attaining robust health, and activity of mind, will gradually grow cold, relaxed, and phlegmatic; the thinking faculties will dwindle into irresolution and indifference, and the body become unfitted for muscular exertion.

After violent bursts of passion, and great disquietude of mind, the body is more exhausted, and the harmony of the systems more disturbed, than after the most fatiguing labour. Sleep under such circumstances will prove a sovereign remedy.

A fretful and peevish temper, and a feeling of melancholy and anxiety, cannot be more effectually relieved, than by a short sleep.

Every stimulus may interrupt sleep, or at least render it unrefreshing and disturbed by dreams, which last effect is commonly induced by irritation of the stomach and bowels,* and by emotions of the mind. We should therefore, on retiring to rest, avoid all causes of deep thought, and stomachic irritation, and we should see also that our bed and covering be adapted to our own condition, as well as that of the weather.

Dreaming is the effect of disturbed sleep, and presupposes the susceptibility of the mind to receive impressions from internal and external causes. In such cases the exercise of the understanding is not wholly suspended; but memory and imagination being relieved from the control of the will, images flitting through them assume the semblance of truths. Some of these are often absurd and ridiculous, others are more pleasing, according to the state of the mind on the approach of sleep, or the nature of the stimulus which awakened the sensations.

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* It is from this cause that so many hypochondriac and hysteric patients sleep so ill; their digestion is bad, and their stomach in an irritable condition, hence watchfulness, nightmare, &c.

Of the many chimerical notions which revolve in uncontrolled freedom through the dreamer's imagination, it would be surprising if none should prove apposite or even true, hence the faith which the illiterate and superstitious have always had in the supernatural agency of dreams.

The temperature of bed-rooms should average between fifty and sixty degrees Fahrenheit. A very warm room is unhealthy, and renders us restless. Fires in bed-rooms are pernicious, excepting in very damp, cold, and frosty weather; they vitiate the atmosphere, and make us much more susceptible to its variations. Lights kept burning during the night, have the additional bad effect of disturbing and preventing rest, by stimulating the brain and nervous system, particularly of the aged.

The practice of warming beds, especially with charcoal, is very prejudicial to health; it occasions a feeling of chilliness when the artificial heat has passed away, and brings pernicious vapours in contact with the body, under circumstances favourable to their influence; it tends also to produce debility.

That perspiration is more profuse during sleep, is much owing to the weight, thickness, and non-conducting properties of the bedclothes, which prevent the radiation of heat from the body, and permit the insensible exhalations to accumulate upon, and to soften and relax the skin. A person who sleeps in his usual day dress will feel chilled, and is liable to suffer from the effects of cold.

The head should be very lightly, if at all covered, when we are asleep; the consequences of keeping the head too warm are at all times prejudicial, and are often productive of serious diseases. The custom of sleeping two or more together, cannot be recommended as being conducive to health; experience proves the contrary, yet the practice has received the sanction of time, and seems of general adoption in every civilized country; but it is no less strange than true, that it forms no part of the domestic economy of barbarous nations, among whom every individual occupies a separate couch.

From the tendency of condensed humidity to descend, and noxious exhalations to float on the surface of the earth, the lower floors of houses are not so healthy as the upper floors; they are necessarily more damp and cold, and particularly so in the evenings and during the night. Breathing such an atmosphere when concentrated, and further vitiated by the absence of solar heat and light, cannot be otherwise than injurious.

Bed-rooms are in general constructed more for convenience than health, and are often the source of many bodily ailments. A spacious and lofty apartment, exposed to the early rays of the sun, and not situated on the ground floor, should be chosen for sleeping in. Damp rooms, small closets, and concealed beds, are exceedingly unhealthy. Seven, eight, and nine hours' nightly confinement in such places, is totally incompatible with the laws of life; even bed-rooms otherwise unobjectionable, may be rendered unhealthy to sleep in by surrounding the bed with thick curtains, which not only interrupt the free circulation of pure air, but absorb and retain foul air, and prevent the exhalations of the body from being dissipated.*

Feather beds, in like manner, imbibe the noxious vapours thrown out by the skin, without our being able to cleanse them of these impurities, which are again re-absorbed, and re-conducted through the relaxed pores, to the prejudice of health. Matrasses filled with horse-hair, are less liable to be affected by damp, and are infinitely better adapted to the purposes of vigorous health, especially in early and middle life.

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* If a canary bird be hung up in a cage at the head of a bed in which two persons are sleeping, with close drawn curtains, the bird, in nine cases out of ten, will be found dead in the morning.—*Curtis on Health.*

Bed-rooms should be thoroughly ventilated, by leaving the doors and windows open during the day when the weather is not cold or damp; during which, the beds should remain unmade, and the bed-clothes spread out to air.

The hours of retiring to sleep should be early and regular. Few plans more destructive of health and life can be imagined, than the modern fashion of sitting up till three o'clock in the morning, and sleeping to the same hour in the afternoon; it is a complete inversion of the order of nature. Reading in bed with artificial light is another bad practice; it retards sleep, and injures both the sight and the health.*

Sound and refreshing sleep is the reward and solace of labour, virtue, and temperance, and is seldom granted to the undeserving.

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* Gas light in bedrooms, particularly when kept burning during the night, is still more dangerous than light from oil or a taper. Unburnt gas, of which a portion is always escaping from some part of the fittings, is highly poisonous, as any one may prove by continuing for a few hours in a public or private apartment, the air of which is impregnated with gas: severe headache, constriction across the chest, nausea, and languor, will be the result.

Sir Humphry Davy narrowly escaped from the effects of an experiment, wherein he imbibed three full inspirations of common coal gas: The first produced a numbness in and about the chest; the second destroyed all power of distinguishing objects, and was attended by "terrible oppression;" the third was followed by a feeling of sinking and of death. He recovered with great difficulty, after suffering much distress, convinced that one or two more inspirations of the gas would have destroyed life.

OF INFANCY.

Few children come into the world free from hereditary taint. The principles of disease as well as of death, are inherent in our constitution, and although at first they may be imperceptible, we are surrounded by so many agents favourable to their future development, that they soon become cognizable in the form of familiar complaints equally numerous with their exciting causes.

Man during infancy, is perhaps the most feeble and dependant of all animals; he possesses it is true the germ of superior faculties; but the internal impulses of instinct are not sufficiently strong to direct these faculties to their proper uses, and therefore he is much more helpless. He but feeds and sleeps until the senses are duly awakened, and the brain, or organ of the mind is sufficiently matured to receive impressions, and to communicate with surrounding objects. At this period the several parts of the body are in their greatest degree of growth and activity, requiring the whole energies of the brain to their support, but as the mental operations progress to maturity, the nervous power furnished by the brain being divided, digestion, assimilation, and nutrition are proportionably impeded. The action of the heart becomes less frequent, the respirations slower, the nervous system less susceptible of impression, and the general sympathy of parts less considerable.

The nature and laws of the infant constitution are not so generally studied, nor so thoroughly understood as their importance requires that they should be, nor is a sense of the deep responsibility of their neglect sufficiently enforced upon the minds of those upon whom such responsibility devolves. That the mortality among children is very great every body is ready to acknowledge, because nobody can deny it, accurate calculations having shewn that nearly one half of all the children born in Britain die under seven years of age. It is surprising that an evil so generally admitted, and so extensive in its operation, should have elicited so little consideration from moral and medical enquirers. That no such mortality obtains among savage tribes, or the wild of those animals whose structure most nearly resembles that of man, and which are guided in the treatment of their offspring by an unerring instinct, affords sufficient proof that the analogy of nature in the rearing of our young is but partially attended to, and that the system adopted by us is not adapted to the singular delicacy and peculiar susceptibilities of their constitution.

Disease, and premature death, are not the results of any abstract necessity on the part of nature, but merely the effects of an infringement of the laws which govern the functions essential to animal life. An observance of these laws is imperatively enforced as the condition of health, and their neglect or violation is sure to incur the penalty of disease.

The complaints of children, when not occasioned by hereditary taint, may be safely referred to defective management, or to some peculiarity in the circumstances by which they are surrounded; and although we may not be able to trace every deviation from health to its remote cause, reason and analogy not the less entitle us to suppose the existence of such, and that its removal must precede an exemption from the consequences of its presence.

Assuming, then, that external and other circumstances of a local and general nature affect the health, and endanger the lives of children, it follows, that the proper adaptation of such circumstances to individual cases, constitutes the condition upon which their healthful existence mainly depends.

Amongst the many external causes of the complaints and mortality occurring in childhood, there is none more frequent and more fatal than improper feeding or defective food.

Milk is the most salutary and scientific compound of animal and vegetable nutriment, and appears to be the natural aliment of infants; it is the only article of diet that comes to them prepared for immediate use. Many attempts have been made at different times to substitute other kinds of food for milk, but they have generally proved failures; and in those cases wherein they have seemed most successful, we are furnished with but so many proofs of the plastic powers of the human constitution successfully combating the dangerous experiments of inconsiderate prejudice.

Some women's milk is nevertheless liable to many objections, owing to circumstances affecting its formation, and of these, health, age, and passions and diseases of the mind, exercise perhaps the greatest influence. I have long thought that parents and physicians attach too little importance to the relation subsisting between the nursling and the nurse.

My eminent preceptor and much valued friend, the late Dr Hamilton, Professor of midwifery in the Edinburgh University, held very strong opinions upon this subject; he thought that not only imperfect health and disease might be communicated in this way, but that the dispositions, temper, and mental powers of a child, always bore the impress of the attributes which characterised the nurse. However this may be, it is certain that the quality of the nurse's milk directly affects the health of the infant, and that medicines and stimulating drinks given to the nurse will act through the medium of the milk upon the child, and it is equally certain that mental emotion in many cases, will stop the secretion of the milk altogether, and in others will so change its quality as to produce painful affections of the stomach and bowels of children who suck it.*

In illustration of this, I would briefly advert to the fact, that garlic eaten by the nurse will impregnate her milk with its odour; that if she indulges in spirituous drinks, wine, beer, &c., the infant will become ill; and if she uses purgative or other medicines, they will act upon the child. Children afflicted with severe griping pains in the bowels from acidity, are frequently cured by giving the nurse animal food.

Many women are mothers who are totally unfit for the duties of nursing: indeed there is scarcely a mother to be found who before becoming such, has ever troubled herself to acquire a knowledge of the nature or wants of new-born infants, or of the principles by which their physical education should be governed.

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* Dr Von Ammon, physician to the King of Saxony, relates a case of a carpenter's wife who, in a state of great excitement, threw herself between her husband and a soldier who had set upon him with a drawn sword; she succeeded in wresting the sword from the soldier, and after breaking it in pieces she threw it away; after the combatants had been separated, and while the woman was in a state of agitation and affrightment, she took up her child from its cradle where it lay playing, and in the most perfect health, and gave it the breast, and in doing so, sealed its fate. In a few minutes the infant left off sucking, became restless, panted, and sank dead on its mother's bosom.

The Lancet, Nov. 9th, 1839, contains a well authenticated case of *hydrophobia* having been communicated through the milk of a Ewe, to two lambs she had continued to suckle for some weeks after being bitten by a rabid dog.

However the prejudices and lazy ignorance of the multitude may oppose the removal of a child from an unhealthy, or otherwise incompetent mother, it should be remembered that the well-being, and not unfrequently the life of both mother and child may depend upon the adoption of such a measure.

I would not be understood to advocate the removal of children from their parents as a general principle; on the contrary, I hold the practice to be an act of violence done to one of the most sacred obligations of nature, and allowable only in those extreme cases where there is an utter incompetency on the part of the mother to follow out the intentions of the Creator towards her offspring. In such circumstances the substitution of another breast is clearly indicated. And even here it will be proper, where there is no hereditary or other cause likely to prejudice the milk, for a mother to suckle her child for some weeks, and to turn it over to a nurse by degrees, in order to protect it from the consequences of suddenly changing to other fluids, than those by which it was originally formed and nourished, and to defend herself from the danger which not unfrequently accrues from suddenly repelling the secretion of the milk in the breasts.

The attempt to bring up an infant entirely upon spoon meat cannot be too strongly reprobated; it is a direct warfare against reason and nature, which no necessity can justify.

Even the mother's milk supplied in this way, would be insufficient for the purposes of nourishment; for the action of sucking, like that of chewing, occasions the secretion of a fluid in the mouth which mixes with the milk, and prepares it for assimilation with the juices in the stomach. Besides, milk when exposed to the action of atmospheric air, undergoes important chemical changes which deteriorate its digestive qualities, and render it less fit for the purposes of infantile nutriment.

Infants should never be allowed to fall asleep at the breast, or to overload the stomach until vomiting ensues, nor should they be dandled or otherwise exercised immediately after taking food.

A healthy intelligent woman of active habits, between the ages of twenty and thirty-five years, will be best adapted to fulfil the intentions of nature to an infant of tender age; and provided she can supply him with plenty of good milk, it will be found quite sufficient for the purposes of nutrition, without the aid of any supplementary food, until nature indicates a change by supplying teeth to masticate it; and even then, any change in diet should be made as gradual as possible, because sudden transitions are often attended with serious consequences. Many of the diseases of infants originate in the practice of forcing other food upon them besides the nurse's milk, a practice contrary to the dictates of instinct, and followed by restlessness, flatulency, griping pains, and other consequences of indigestion.

When at the period of weaning, a change has been cautiously established, milk, eggs, light animal broths, and farinaceous substances, should constitute the chief articles of diet, to the exclusion of that which is purely animal. Much more harm is done by giving animal food too soon, than by delaying it too long: indeed, experience has shewn that a milk and vegetable diet is the most suitable for children. Animal food, like medicine, would require to be given under the direction of a physician. I have frequently had occasion to observe, that children fed upon rich animal and other concentrated and stimulating food, became excitable in temper, and thin and feverish in body, and that a change to mild aliment improved both their dispositions, and their health.

The relation between the particular conditions of the system and the food of infants, should always be kept in view, lest diseases be engendered, which the object is to prevent; but although disease will be found to arise more frequently from too much nourishing and over-stimulating food than its converse, it is of equal importance to bear in mind, that deficiency in the quantity or quality of food, when added to scantiness of clothing, want of cleanliness, and of good air, will act with an influence equally deleterious.

As the teeth of children multiply, the proportion of the two kinds of sustenance, animal and vegetable, ought to vary. Should derangement of the bowels, thirst, hot skin, peevishness, and flushing of the face towards evening, at any time supervene, it will be a sure indication that the regimen has been faulty, and that it requires modification.

The use of cradles, and all sorts of motion to infants when sleeping, is unnatural and unnecessary. Children should be accustomed to sleep with their faces uncovered in bed from the time of birth, and this they will readily learn to do, provided no unusual irritation be kept up in the stomach or bowels from improper food on the part of the nurse. A child seldom cries, but from pain or uneasiness, and in most cases the cause may be readily traced to some indiscretion, or to defective management; hence the use of rocking and swinging machines, the susurus of the voice, and the still more pernicious practice of exhibiting soothing syrups, and quack nostrums to induce sleep. Acidity in the first passages, is the most common occasion of pain and sleeplessness in children; a little antacid carminative medicine in such cases will often produce repose, when disguised opiates, "soothing syrups," and sleeping draughts would retard it by increasing the exciting cause. Newfangled and unadvised parents, however anxious about the welfare of their children, are the most likely to injure them by officious interference, and an ignorance of their organization. The mischief generally commences with the mother's convalescence from childbed, when varieties of the finest, and most nourishing articles of diet, are remorselessly crammed into the tender and highly sensitive stomach of her new-born infant. These soon pass away into the first passages, when the stomach renews its clamours for fresh supplies of such easily digested matter, and which containing so large a proportion of the elements of chyle, remain long exposed to the process of assimilation in the intestines, subjecting the absorbing lacteals to constant and excessive action, clogging the bowels with the *remora* of the alimentary mass, and producing constipation, plethora, nervous irritability, and a predisposition to inflammatory and other complaints. In many cases, nutrition is checked at its source by the excessive stimulation of the organs intended to effect it; and from congestion in the mesenteric region, glandular diseases, marasmus, and such like affections supervene. Where children are constitutionally delicate, or restrained from frequent and free exercise in the open air, all or any of these causes will operate with a surer and deadlier effect.

The diseases of the mesenteric glands, or that congestive inflammation of the nutrient absorbents of the bowels referred to, originate in an effort of nature to arrest the progress of crude and hurtful alimentary fluids: it is thus that INFINITE WISDOM pleads the cause of health, and dictates the use of judicious and soothing food, to allay the disturbed condition of those glands, and allow them to recover their lost tone, instead of increasing the irritation by the rash exhibition of calomel, and other drugs, too generally resorted to upon an irrational and false hypothesis.

Mothers and nurses otherwise well-informed, are often found to be very ignorant on the subject of eating; they consider it the grand *solatium* of all pain. The moment an infant opens his mouth to cry, the breast or some article of food is thrust into it, although a few minutes have barely elapsed since his last repast. Such a practice cannot be too strongly reprobated, it is not only unnecessary but hurtful. Even new-born infants will not sustain any injury, although they do not get either food or medicine until nature furnishes both in the mother's milk; excepting in cases, where it is unnaturally delayed, so as to endanger the child's safety; when a few teaspoonsful of fresh cow-milk, diluted with water, may be given at intervals of three or four hours, until the secretion of that of the mother be fairly established. As a general rule, no child ought to be solicited to take food or drink; he will seek it if he wants it. There will seldom, if ever, be any necessity for forcing either upon him; on the contrary, his attention ought to be diverted until the period arrives when he is in the habit of getting it, or that the cravings of hunger demand immediate gratification.

However numerous the disorders may be, which are directly or indirectly occasioned by improper feeding, those produced through the agency of atmospheric impressions, and sudden changes of temperature on the external surface of the body, are no less numerous and important. It is in vain to attempt to counteract this evil by either very light, or very warm clothing, without early and habitual exposure to transitions of heat, cold, drought, and humidity.

The alternate application of warm and cold water, "*calida lavatio*,"* by immersion and sponging, during the first year or two to the whole body, and afterwards by the latter only, applied to the face and upper part of the chest every morning, has been found, when properly directed, to prove exceedingly beneficial; it not only imitates the atmospheric vicissitudes of this climate, but will to a great extent obviate their effects. The hot water fills the capillary vessels of the skin with blood, and the cold water braces them in their distended state, without producing a chill, or a too sudden retrocession owing to the existing excitement and heat of the surface.

The clothing of children ought not to be too light, or too tight, nor should it be fatiguingly heavy, or slovenly loose, but carefully adapted to the retention of heat, freedom of motion, and protection from cold. The exposure of the legs, and other parts of the bodies of children, with a view to rearing them hardy, in a climate like this, is quite unpardonable. It is not unfrequently productive of inflammation in the bowels and lungs, leading to the destruction of life; and in all cases it is prejudicial to growth and to general health.*

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* HIPPOCRATES. GALEN. See Hygiene by HALLE, p. 310, and CELSUS' Code of Health, 2d edit. vol. 2. p. 82.

The celebrated Dr John Hunter's recipe for rearing healthy children, is "plenty of milk, plenty of sleep, and plenty of flannel." He should have added, "plenty of exercise in the open air," without which, the others, however well ordered, will be but partially beneficial.

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* "The experiments of Dr Edwards have shewn most conclusively that young animals possess a power of generating heat far inferior to their seniors. In despite of this fact,—in defiance of the laws of nature, and in utter contempt of common decency, and of common feeling, children have now their legs and bottoms bared, and are sent into the streets even in cold weather, with clothing which would qualify them for the ballet at the opera house. If the fathers and mothers of these poor little urchins were served in the same way, they would get no more than their deserts, and their chilblains, rheumatisms, and pleurisies would bring them to their senses pretty speedily."—*Johnson's Medical Review.*

"From early infancy, flimsy and gaudy vestments are the only coverings allowed the offspring of affluence, and as if the devoted victims should be debarred every chance of escape from colds, and coughs, and scrofula, producing chills, their unadvised parents make a picturesque display of their naked throats, shoulders, arms, and legs, in all weathers."—Sir Anthony Carlisle.

The head should be kept cool in infancy, for in early life there is a tendency to nervous irritability and rapid circulation, which warm covering on the head will encourage. Errors of this kind are more apt to be committed when children are put to sleep than at other times. Many children who have been accustomed to be dressed in the ordinary way when awake, are literally buried in blankets when asleep. The very transition in such cases is prejudicial to health.

All swathings, bandages, stays, and other ridiculous contrivances for keeping the head in its place, and the body firm, ought not to be had recourse to—they are worse than useless. Nature never produced her noblest work, a human being, so carelessly finished as to require such artificial aids to make it perfect.

Infants and young children are particularly obnoxious to the injurious effects of impure air, which is equally as destructive to life and health, as scanty and improper food; indeed the effects of either are sufficient to impair the best constitution, and to beget *scrofulous diseases.* Adaptation of food, and a supply of pure air, are circumstances which more than all others influence health during the growth of the body. Children who have been early accustomed to the external air, and to great simplicity of diet, become little more sensible to the injurious effects of the weather than the young of the lower animals.

The importance of pure air to infants cannot be more strongly enforced or better illustrated, than by comparing the health of children nursed in the country with that of those reared in populous towns.

Dr Price in his essay on population, refers to an act of parliament passed in 1767, obliging the parish officers in London and Westminster, to send their infant poor to be nursed in the country; before which, only one in twenty-four of those received into the work-houses lived to be a year old; so that out of 2,800, the average number admitted yearly, 2,690 died; whereas, since this measure was adopted, the annual amount of deaths has not exceeded 450, and the greater part of these happens during the three weeks that the children are kept in the work-houses before putting them to nurse.

In the Lying-in Hospital at Dublin, in the four years ending 1784, no less than 2,944 infants out of 7,650, died within the first fortnight after their birth. It was subsequently found that this great mortality was owing to a deficiency of pure air. The Hospital was therefore improved and thoroughly ventilated; the consequence of which was, that the proportion of deaths was reduced to 279, hence there is reason to suppose, that out of 2,944 who died in the space of four years before, no less a number than 2,655 perished from bad air, owing to imperfect ventilation.

I have frequently witnessed the most salutary effects from pure air in cases of infantile irritability and convulsions, whether arising from teething or other causes. Many cases which had resisted the ordinary means of removal were relieved as if by magic, on being exposed to the fresh air;* in fact, it is by far the best and least hazardous anti-nervous remedy and tonic we possess.

Sir Anthony Carlisle is of opinion, that individuals who have been town-bred, in both the male and female line, seldom if ever extend their progeny beyond the fourth generation. He thinks they progressively dwindle and lose the respective sexual characters until their procreative ability ceases.

School-rooms and nurseries ought to be dry, spacious, and well ventilated. Every operation by which their atmosphere can be vitiated or their cleanliness impaired, should be strictly prohibited, and as children are not to be kept warm by means of fires, but by exercise and clothing, fires ought not to be allowed, particularly in nurseries, excepting in cases where they are absolutely necessary. But whether they be used or not, it will be advisable at all times when the apartments are unoccupied, to admit a free circulation of fresh air by the doors or windows.

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* A medical friend called me one evening to his child then in a fit; he had had several during the early part of the day. I found the house strongly impregnated with the smell of oil paint, which was then being used on the walls. I had the child removed to another house, when the convulsions left him. On being taken home next day a fresh accession of fits occurred, and were again relieved by removing him to a purer atmosphere.

In the rearing of children, frequent ablutions are indispensable; the best method of applying which, is by immersion in a bath: by this means their wet bodies will be exposed but once to the air for a few seconds when about to be dried, and only once; whereas when they are washed piecemeal, by laving the water on them, the long exposure to the cold air while portions of their bodies are being alternately wetted with the tepid water, will be apt to produce chills and serious inflammatory affections.

The temperature of the water used for washing infants should be about the same as that of the blood, say 98° FAHRENHEIT. The room in which they are washed ought to be moderately warm, and free from currents of air. The best times for washing children are in the mornings directly after being taken out of bed, and immediately before retiring to rest at night.

As infants advance in age and strength, the temperature of the water used for the morning ablution may be gradually reduced, and more particularly so in the summer season; but during the winter, and in cases where the infant is very delicate, much caution will be necessary in making any change. After the third or fourth month the evening ablution may be in most cases dispensed with; but, when heat of skin or irritation from teething is present, it will be advisable to continue it, and when necessary for the purposes of cleanliness, it ought never to be omitted.

Want of cleanliness is one of the most fertile sources of irritation to infants. GALEN speaks of a child which cried incessantly, and would not be quieted by either music, motion, or the breast. There were no symptoms of disease present, but on examining, he found the bed, the clothes, and the body of the child wet and dirty; he prescribed general ablution, warm dry clothes, and bedding, after which the child fell into a sweet sleep that continued for many hours.*

The same author reprehends the practice of washing children directly after taking food. Children, he says, should always be washed after a long sleep, when the stomach is empty. He protests also against the custom of plunging children into cold water; "a practice fit for Germans or barbarians, or for lions, or bears."† This opinion should, however, be received with considerable allowance. As a rule of more general application, I would say, if a child two or more years old after the use of the cold bath, on being immediately rubbed dry and dressed becomes warm and lively, it indicates that the bathing agrees with the state of his constitution, and that he will be benefited by it; but if, on the contrary, a child becomes chilled and pale, and his limbs benumbed or cramped, after being bathed, rubbed dry, and dressed, the cold bathing should be discontinued, and the tepid bath used instead until his health improves.

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* De sanit. tuend. lib. i. cap. 10. † Ibid. cap. 7.

In early childhood, when every organ and fibre is exuberant of vitality, rest is absolutely a punishment, and motion a pleasure; little restraint should at this period be opposed to the impulses of nature. The fashionable short cuts to mental culture ought to be avoided, as the sure sources of premature imbecility and decay. Exercise and amusement should constitute the ground-work of all instruction, and be blended with all manner of moral training. The first seven years of life ought to be given exclusively to the physical development of the constitution, and the acquirement of such knowledge as is deriveable from impressions made upon the senses without much reflection or aid from the judgment. In other words, habits and manners should supersede scholastic drill rooms, where tasks are wearisome and irksome to the mind, and confinement and foul air pernicious to the body. Parents who can boast of having taught their children at the age of seven, to be candid, obedient, orderly, and punctual, have done more for them than if they hadtaught them to forestal the age of reason, by forcing precocious talent to its utmost limit.

System is the great distinguishing feature of creation. Everything that we can judge of in the universe and in ourselves is governed by certain rules of periodicity essential to general harmony. Our occupations, passions, and pleasures, ought to be subjected in like manner to this fundamental principle. It is in the morning of life that this discipline of the habits can be attained. It is while the wax is ductile that the model is easily formed. Sleep, food, exercise, instruction, and amusement, everything in short that is done should be done at stated periods. The *practice* of what is right thus early confirmed, becomes a second nature, and proves a source of satisfaction to ourselves and to those linked with us in our domestic relations throughout our future lives.

Example has a powerful influence on the minds and manners of children, and ought to be used as a means of determining the rules of conduct which is to distinguish adult age; but what we wish them to be, we ought to be ourselves. If we do not restrain our own passions, if we are idle or immoral, or fitful and deceitful, it cannot be supposed that our example will stimulate the growth of opposite virtues in our children.

Corporeal chastisement is seldom if ever necessary in the management of children; they may be taught to do anything within the compass of their powers, but they cannot be forced. Harsh treatment will assuredly defeat the object of begetting in them either love or obedience; on the contrary, it will crush their spirits, stimulate their worst passions, and stifle a desire for attainments, which they are thus taught to contemplate in conjunction with punishment.

The nature and uses of external objects correctly explained to children by means of pictures, figures, insects, toys, &c., will afford sufficient occupation for the mind, and while they amuse, will encourage a thirst for book knowledge, which will instinctively seek its own gratification when the composite powers of the constitution are sufficiently matured for the reception, of more complex instruction.

It has long been observed by physicians that children who are prodigies in learning, continue children, provided they do not fall early victims to disease of the brain or some other affection depending upon misdirected education.

Plato and Aristotle, both accurate observers of nature, condemned book learning in infancy, and recommended the fields and woods as the first great volume, from which children without restraint should be permitted to imbibe the principles of future knowledge and the elements of a disposition for philosophical research.

OF YOUTH.

It is an acknowledged principle in the distribution of the vital powers, that increased exertion in one function diminishes more or less the power of simultaneous exertion in some other; thus when their energies are directed to the support of violent muscular action, the thinking faculties as well as the digestive organs will be rendered unfit for their respective duties, the nervous influence and nutritive blood required for these purposes being expended in other parts; but so soon as the increased action of the vessels and nerves of the muscles have subsided, and the balance of distribution has been restored, the digestive organs and thinking powers will resume their functions. Again, when the mind is much exercised, the influence of the vital powers is concentrated in the brain, and all the other parts of the system suffer from an inadequate supply. In childhood and in youth this is particularly observable, for the great and early development of the brain, so necessary at these periods for the increase of the body and for the purposes of life, predisposes to various affections of the head, this predisposition is powerfully increased by the premature application of the thinking faculties, which operates in a twofold manner to the prejudice of both health and growth. The nervous energy required for these purposes being spent in mental operation, the body becomes enfeebled and diseased, while the brain, in consequence of the increased quantity of blood and vitality required to keep up the excitement of study, enlarges unnaturally, whereby the nervous system, already too active, receives an accession of strength which destroys the equilibrium of the several systems, and lays the foundation, if not of early death, of disease and misery in after life, which will render all the acquirements of precocious talent of no avail.

No wonder that SALZMANN expressed astonishment that the thousands who perish by "the disease of education," had no effect in calling attention to the means of lessening the mortality; and that SIR JOHN SINCLAIR in his erudite treatise on health, should consider exercise in early life preferable to mental cultivation.

It has been observed that few children remarkable for precocious talent arrive at maturity, and of that few, scarcely any fulfil the expectations of their parents or teachers; while the most distinguished men in every department of science and literature, have been remarkable in early life for dulness and incapacity.* It is self-culture in mature minds and not scholastic exercises in fragile youth to which intellectual eminence is to be chiefly ascribed.

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* The author of "the Queen's Wake" was a man before he could even read. SIR ISAAC NEWTON was considered "a lad of slow perception." DR ADAM CLARK was called by his father, "a burly boy fit only for rolling stones." Two of the most distinguished professors in the Edinburgh college, were bred to mechanical professions before commenc-

Ancient history describes a people whose modes of educating their youth, banished almost every kind of disease from amongst them. The Spartan children, during the first seven years of their lives, were left exclusively under the care of their parents, after which they became a sort of public property, being handed over for mental and corporeal education to the state, which subjected both sexes to a regular and severe system of bodily and intellectual culture. Their religious and literary studies, their exercises and play, were all in public and in common. They were early inured to the vicissitudes of the weather and the temperature of the atmosphere. Their food was simple, consisting chiefly of bread and herbs with water; hunger sweetened their repasts, and fatigue was their opiate of repose. By these means the physical powers

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ing to study. The Rev. DR LEE, professor of Arabic in the Cambridge university was a journeyman carpenter, as was also the celebrated DR JOHN HUNTER. DR FARADAY was a bookbinder. MOLIERE, GIBBON, FRANKLIN, NIEBUHR, HERDEZ, and many others equally eminent, were remarked for any thing but precocious talent. There is an anecdote told of SIR WALTER SCOTT, who when a boy at school, on being asked by his father what place he held in his class, answered, “ I am second Dux,” upon which his father, being highly pleased, gave him sixpence, and interrogated him farther as to the number of pupils in his class ; “ only anither *lassie* and me,” was the mortifying reply.

of the young Spartans were developed to the utmost perfection, and their passions effectually subjugated to wholesome moral discipline. So much was this the case, that the Spartans were equally extolled among the nations for magnanimity and virtue, as for symmetry and manly strength.

However Utopian such a system of education may be thought in our day, we know that it was at one time acted upon with the effects described; and although it is not meant to recommend its renewal as being applicable to the present altered state of society, yet it furnishes a useful lesson in applying the mixed systems presently in use.

Science and literature take precedence now of vigour and beauty. Mind transcends matter, and excessive education is being opposed to the laws of health and longevity; it is, therefore, the duty, as well as the province of the physician and of the moralist, to direct attention to the evil, and if possible to suggest a remedy.

The grand system of education, according to Rousseau, is to contrive that the corporeal and mental exercises may serve as a relaxation to each other; an observation founded in truth, and confirmed by experience.

There is a striking disproportion between the exercise of the mind and that of the body in the present course of rudimentary instruction. The lessons are often inappropriate, and are at all times too long, occasioning listlessness, languor, and fatigue; this again blurs the perception, and oppresses and confuses the memory, thereby diminishing the force and vividness of impressions, and rendering them less lasting, so that in the ulterior stages of educational discipline, when it becomes necessary to draw upon the resources of early acquirements, the stores of the understanding are found filled with dreamy recollections of obsolete languages and mythological fictions; of words and crude theories, instead of well defined principles of modern science and useful knowledge; while the mental and moral constitutions then jaded and worn by previous exertion, are unfitted to imbibe and digest fresh truths.

Of the systems of education presently in use, a mediate or mixed system in a public seminary will be the most likely to obviate such results, for there emulation will call energies into action that would otherwise lie dormant, as friction will bring forth and brighten from among the rust of ancient medals the lineaments of great characters and the work of ingenious artists. Such, therefore, as expect to be much in the world, who are likely to be compelled from circumstances to become practically acquainted with the rough work of every day life, should begin their career at a public school. Thoughtless enterprise in early youth leads to an early acquaintance with danger, and to the habits of combating difficulties. No stiff fastidious model of unnatural restraint ought to be set up for imitation —no sentimental code of effeminate etiquette or inactive indulgence recommended as a refuge from the supposed agency of evil propensities,—a thing more talked of than understood. What is generally mistaken for such a happy temperament, is but an undue attention to the fashions and forms of a limited circle or period, by which the native grace of nature's character, that happy creative fancy which in the infancy of thought embellishes every object, is obscured and lost in a multitude of artificial refinements, enervating pursuits, and profitless pastimes.

The continued enjoyment of superlative pleasure destroys the feelings for everything of inferior relish. The delight at first felt from exquisite music grows dull, but the ear ever after sickens at coarser strains. In youth there is an eagerness for immediate gratification. The pampered mind will not endure the anxiety of anticipation; the bait is at once seized upon, but too young and undisciplined, the appetite is speedily cloyed, and turns to some new object which in like manner is but tasted and abandoned for the next that offers itself. In this way neither pleasure nor employment is fully proved or sufficiently dwelt upon, and the inclinations get a habit of fickleness and frivolity which leads to general disgust; the desires are palled, but not gratified; the judgment is sophisticated, but having no real knowledge; the freshness of halcyon existence is exhausted, and when the stubborn realities of after years come, the charm, the *couleur de rose* of life is gone, and the victim of over-refined education and weak indulgence becomes a profitless and selfish member of society equally incapable of communicating as he is of receiving happiness.

I would aim at an education at once hardy and invigorating, varied and agreeable, rational and adapted to the respective peculiarities of individuals. To the robust and indolent, I would apply the spur; to the delicate and precocious, the rein;—one uniform and great object being always insisted upon, *i. e.* the rapid and perfect attainment of small portions of knowledge at stated periods, the punctual premium being a limited time for play in the open air, regulated in its character by judicious restraint; this in all cases will be found necessary, for where a predisposition to consumption or to disease of the heart exists, severe exercise will prove injurious, and indeed in all cases disproportioned and ill-regulated exercise will stunt the growth and injure the health of both mind and body.*

The food of boys at school should be simple, plentiful, plain, and substantial; but of a more fluid consistence than that of adults. No kind of drink should be allowed but water; "bad habits are readily and early enough acquired, they should never be taught." Order in all things and strict obedience to prescribed rules should be regularly enforced; the evil dispositions of the vicious should be controlled, and the tyranny of the strong over the weak, visited with certain and severe chastisement.

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* HIPPOCRATES, sect. 1, oph. 13.

GALEN considered rigid discipline in moral habits and the due regulation of the passions in youth, the only proper groundwork of future health and enjoyment. He recommended parents and guardians to give those seminaries a preference where the practice of virtue was held in the highest estimation, and where a considerate regard was paid to the indications of character in the appliance of rules.* So far GALEN was right, but fortunately for our present and future well-being, the obligations of rectitude extend farther; they have a firmer foundation than the mere deductions of philosophy; their existence depends not upon local or adventitious circumstances,—they are emanations from Deity—integral parts of the human constitution, whose legitimate object is a conformity to the divine attributes. This is the influence that ought to be universally acknowledged—the proper standard for imitation in the subjugation of our passions, and the regulation of our actions—the one great principle that should be recognised in all institutions and by all teachers, that should be steadily kept before the mind from earliest infancy, and regarding which parents and guardians ought to satisfy themselves in placing their children.

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* De san. tuend. lib. 1. cap. 12.

Hitherto I have spoken of education chiefly in reference to male youth, but as my object is not so much to work out details, as to establish principles, my remarks in many instances will be found to apply to the female also ; in others, I am aware they will not, and therefore I will briefly advert to some circumstances which refer exclusively to females, and which, so far as they relate to the systems of modern acquirements, are much more objectionable than those of the male.

The education of female youth is chiefly ornamental;—it aims at just a sufficient amount of accomplishments to obtain a certain end, which they are taught to consider in connexion with that of their being ; and as these accomplishments have no ulterior object, they are subsequently thrown aside as useless, and a new series of duties attempted, for which so mawmish an education has totally disqualified them. "An accomplished" wife understands not either the character or duties of her new situation, she has neither the knowledge nor strength necessary for their performance, hence one prolific source of unhappy marriages. Should, however, these superficial acquirements fail in their object, they become gradually disused, and the super-sensitive and unhappy spinster is left a double prey to the tortures of disappointment, and the moth of ennui without internal resource or external sympathy.

A domestic education under favourable circumstances, is in most cases to be preferred to that of a boarding-school, for notwithstanding the pains that may be taken, evils attach to congregations of females which no care can entirely prevent. Whichever mode be adopted care should be taken that proper exercise, freedom of motion, and clothing adapted to the condition of the weather should form essential adjutors.

One great evil pertaining to the present fashion of educating females in the middle ranks of life, is the manner in which they are taught to view household and other profitable employment as being unladylike and a derogation from their dignity; and they rather subject themselves to the discomforts and annoyances of genteel poverty, than endeavour to avoid it by industry and economy, while at the same time they are not unfrequently found bearing heavily upon the slender resources of some kind relative. How many thus delude themselves with the hope that they will still have such an one on whom to lean for the "vulgar" necessaries of life, while the flattering attentions of the protecting sex add to the evil, by lifting their minds above sober thought and the anxieties of dependent pursuits, until in the mutation of time the reluctant truth is forced upon them, and they find themselves deserted, and wanting even the consolation of self-approval.

Of all the arts hitherto invented to kill time, and as a substitute for profitable pursuits and healthy exercise, instrumental music as presently used is the most objectionable, as being not only the most destructive to life and health, but the least useful to a female at the period when she requires most the resources of a strong, well-regulated mind, and the activity of well-disciplined habits; it is not only objectionable from the evils connected with the sedentary usages it enjoins and the idle habits it inculcates, but from the morbid sympathies it invariably begets—sympathies which require only the additional indulgence of reading novels and other exciting works of imagination, to prostrate the best understanding, and taint the finest affections of the heart.

Music is purely a science of sense; years devoted to the study of its dots, dashes, and other signs, and to its practice, leave no moral impression behind them of good or evil; the nervous system is but excited, the sensibilities rendered more acute, and a predisposition to melancholy engendered or matured;

> "Its song is death, and makes destruction please."

It is well known that any of the external senses may be brought by indulgence to such an extreme degree of sensibility and refinement, as to be disgusted with almost every object that acts upon it, and although this is the effect of vanity and affectation in the first instance, it becomes by cultivation a habit of the mind equally destructive of equanimity as it is prejudicial to health.

I would not be understood to condemn music as a profession or as an occasional pastime; I but oppose myself to its abuse—to the mania that prevails for making every female a musician, and to the time wasted in the acquirement of a profitless appendage, to the exclusion of healthy exercise, necessary pursuits, and useful information. I would have females raised to the dignity of companionship, not reared with a view merely to the pastime of men. I would have their minds fortified by substantial and becoming knowledge, and their habits early trained to self-control, and an acquaintance with the common exigencies of life, to enable them to combat moral crosses with becoming fortitude, and to fulfil with pleasure and advantage the duties of the responsible situation for which Heaven has evidently designed them.

Excessive excitement, and an education that aims at the masculine study of abstract truths, are equally ill adapted to the nature, organization, and position of females. Their sensibilities are more acute, their emotions more intense, and their impressions more delicate, than those of males; and to force females into the acquirement of those qualities for which males are distinguished, and sexually constituted, is to counteract the purposes of the Creator, and to blur those native graces and affections, which, when properly developed, and rationally cultivated, constitute the greatest excellence of the female character.

I have been long of opinion, that the influence of females in forming the tone of society, is not sufficiently estimated,—that it is to them the men are indebted for their proper elevation of character, and that unless females be brought up in dignified virtue, and with industrious and religious habits, it is vain to look for these attributes in society as the result of the education of males.

Tight lacing is a practice of general adoption among females; yet I never could get one to acknowledge herself guilty of it. It has been discussed and reprobated by medical writers *ad nauseam*, with seemingly but little benefit; for it still obtains its wonted dominion in spite of its obvious destructive effects. The impotency of the ridicule and reasoning which have been brought to bear upon it from time to time, must be owing to the slow and insidious process, by which it brings about the aberrations from health. The cause is ultimately lost sight of in the effects, and it is difficult to get people to subscribe to their own acts of folly, particularly when by doing so, they but give a triumph to their accusers, without remedying the evil they have brought upon themselves.

"Some nations," says DR GREGORY, "have fancied that nature did not give a good shape to the head, and thought it would be better to mould it into the form of a sugar loaf. The Chinese and Japanese think a woman's foot much handsomer if compressed into the third part of its natural size. Many African nations have a like quarrel with the shape of the nose, which they think ought to be laid as flat as possible to the face. The natives of Laos widen the holes in their ears, and stretch the lower lobes until they reach their shoulders; and in the southern provinces of China, the girls are taught to elongate their eyelids, by painful extension, with the view of improving the beauty of the eye. Such are the ideas of these different people. We laugh at their folly, and are shocked at the cruelty of such barbarisms, but think with equal absurdity that the natural shape of a woman's chest is not so elegant as we can make it, by squeezing the bowels and lower parts of the lungs into smaller compass, by means of stays, and belts, and other destructful contrivances."

It has always proved an ungracious task to oppose science to the removal of antiquated customs. The multitude would rather be deceived than informed; but it is to be hoped, as knowledge advances, and prophylactic and medicinal agency is better understood, the delusion of error will become dissipated in the salutary application of reason and truth.

Breathing is effected by the natural expansion and compression of the lungs. It is impossible to fill the lungs with air without elevating the ribs externally, or pressing down the *diaphragm** internally. Both these processes are impeded by tight-lacing, which in many cases renders the ribs perfectly motionless, when the act of breathing is of necessity performed by the upper portion of the chest which is free from compression, and by the partial descent of the *diaphragm*, which injuriously presses down the stomach and superior bowels with it. The lower portions of the lungs in such cases are forced into a collapsed, consolidated state, and rendered impervious to air, which ultimately becomes their permanent character, while the upper portions, in their efforts to perform the functions of both, become inordinately dilated, and during violent muscular exertion, such as dancing, singing, &c., the distended cells are not unfrequently torn, giving rise to spitting of blood, ulcerated lungs, consumption, or other serious affections.

It is no uncommon thing to see otherwise ingenuous and well-proportioned females hooped up in patent double action corsets; their faces bloated from impeded circulation, and their breasts heaving with convulsive throes upon the most trifling exertion, indicating the inconvenience they suffer, and the sacrifices they make to a perverted taste and a pernicious custom.

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* The midriff, cross-wall, or *septum transversalis* of anatomists. A broad thin muscle which divides the cavity of the chest from that of the abdomen.

It is truly pitiable to witness these "objects" of fashion, vying with each other in the tightness of the ligatures and laces by means of which they strive to separate the upper and lower halves of their bodies, and in disposing and adapting their dress so as to give full effect to their "prominent" improvements in showishness and shape.

Although the resources of nature are all but omnipotent in overcoming obstacles, yet they are found inadequate to command the healthy functions of the stomach and bowels in this new and unnaturally constringed condition. Digestion and assimilation are therefore imperfectly performed, and by reason of sympathy the whole constitution becomes deranged. The muscles of the waist, owing to the pressure made upon them, and consequent inefficient nourishment, become flaccid and attenuated. The lower extremities waste from interrupted circulation, or swell from inanition and defective absorption, inducing bodily weakness and indolence. The spinal column in such circumstances is apt to become distorted.* The colour of the skin turns dingy and healthless, and the spirits droop and languish. Infirmities multiply with time, and are perpetuated by transmission from parent to progeny.

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* In an assembly of what is called well-brought-up young ladies, few are to be found whose spine is not more or less distorted, while among vulgar country-reared girls, and congregations of boys, such distortions are of rare occurrence.

In short, fashion has decreed, and society has sanctioned the fiat, that youth must now suffer more than nature can with impunity bear, or than nature's God ever designed they should suffer. No wonder, then, that the sedentary and other unnatural habits of the upper classes, and the unsalutary avocations, practices, and privations of the middle and lower classes, should occasion such dreadful havoc in health, and engender such an infinitude of physical and mental maladies.

ADOLESCENCE.

Adolescence is perhaps the most important period in human life. It is that in which the characteristics of both mind and body assume a determined bias, and in which the moral attributes are most tested in the maintenance of health and virtue. At this epoch, if the understanding has not been sufficiently trained to resist the influence of sensual propensities, passion will predominate so much over principles, that the fear of bodily suffering, and the retributory vengeance of "a mind diseased," are the only likely agents to avert the ruin of constitution and wreck of intellect, to which an indulgence in such propensities will inevitably lead.

If the youth of both sexes could but see through the vista of future years, and there behold the catalogue of afflictions inseparable from humanity, they would pause before they added to the number, by originating maladies, at a time when nature is endeavouring to fortify the material fabric against the influence of those that will necessarily assail them in the progress of life. Yet this is the very period when some of the most deadly seeds of vice and disease are implanted in the constitution; seeds which not only grow with our growth, but which acquire vigour from our weakness, and obtain victory in our decay.

The present state of civilization is unhappily productive of much that wounds the mind and depresses the spirits. Blighted expectancy, hopes deferred, merit neglected, and ingratitude unpunished, are but links in the extensive chain of morbid sympathies and associations which we must lay our accounts with meeting, and be prepared to combat as moral evils necessarily connected with our present condition, and arising out of the selfish nature of our social relations.

The experienced eye easily detects in the yet ingenuous face, the workings of the passions, and their effects upon the constitution. The power of reason is but little acknowledged in controlling the affections. Ardent, guileless and devoted, they triumph for a time, amusing the imagination, and gratifying the senses; but in the ever-varying yet immutable order of nature, inconstancy and deception succeed to disseminate discord and germinate disease.

The truthful portrait drawn by the poet, is but one of the many presented to the observant physician.

——————" She never told her love,
But let concealment, like a worm in the bud,
Feed on her damask cheek ; she pined in thought,
And with a green and yellow melancholy,
She sate like patience on a monument,
Smiling at grief."

Nature's impulses are not always favoured by circumstances congenial to their object;

hence the unhappy effects of causes designed originally for our good; hence it is that the dictates of reason and the admonitions of experience are so often unheeded or despised, and that the fountains of happiness and health are so often tainted by the UPAS of enjoyments, whose consequences involve the innocent and guilty in one common ruin.

Happiness is the great goal at which all would aim, and regarding which opinions vary, and direct to means as various to attain it. Few stop to consider the simplicity of nature's laws, and the penalties of disobedience. In the eagerness of the pursuit, truth is neglected, while the *ignis fatuus* of intemperate hopes precludes the advantages of deliberate calculation, entailing disappointment, and profitless regret.

Of all the periods of human life there is none in which plenary indulgence in ill-judged habits is so destructive of health and happiness as that of adolescence; nor is there another wherein temperateness and suitable exercise will return so large a profit of these blessings in after years; for health is more the reward of temperance than the effect of constitution.

It is to be regretted that the necessity of circumstances, owing to the manner in which society is presently constituted, exposes the young of both sexes in the lower and middle ranks of life to numerous evils, destructive alike of bodily health and virtuous emulation.

Factories, stores, workshops, and counting-houses, furnish an endless variety of causes, which produce a corresponding infinity of injurious effects. Scanty clothing, improper food, exposure to bad air, sudden changes of temperature, depressing passions, sedentary employment, long confinement, and intemperate habits, are but too prominent features of the present productive systems. Nor do the ascending links of society afford much cause for gratulation. The multitudes of young people congregated together in colleges and class-rooms, the severity of study, the influence of rivalry, contending passions, and the absence of the necessary restraint of natural guardianship, conspire alike to enervate the physical, and corrupt the moral constitution, as well as to consign debility and disease to an unfortunate offspring.

The love of pleasure is the besetting sin of adolescence, and happy is he whose principles and tendency of mind direct him to suitable employment, or to exercise and well-regulated study, instead of to idleness, dissipation, luxurious ease, and frivolous pastime.

The natural and quiet blending of the intellectual and physical functions, and the harmony of their united operations, give a feeling of health and pleasure which may be felt but cannot be described. These are the criteria by which to test the consistency of our modes of living and acting with the eternal obligations of rectitude, and the purposes of the Creator. If this agreeable equipoise, this feeling of health and comfort, remains undisturbed, and our conduct involves a principle of general application and of universal good, it must in the nature of things be rightly directed, and will be productive of health and rational happiness. But if, as is more frequently the case, the reverse obtains, and the sweets of the present hour are eagerly seized upon, regardless of consequences which are sure to embitter after life, we have ourselves to blame. Having recklessly abused our reason and freedom of choice, we should bear without murmuring the consequences which that abuse entails.

We have but to look around us in large commercial communities, or in the societies of the dissipated or idle, for illustrations of the verity of such entailments. There the dull eye and flabby corpulency of lethargic apathy—the pinched features of irritability—the shrunken, emaciated or tumid, or misshapen limb, speak in language not to be misunderstood, that the healthy, joyous spring-tide, the elastic plumpness of breathing millions has been insensibly and gradually undermined, if not wholly and for ever extinguished.

It is the refuge of ignorance, or the blindness of prejudice, to say that these evils are either natural or unavoidable. Disease is never a separate principle, but only a deviation from the average condition, whether it be partial or general, accidentally induced upon the living function, or growing slowly out of its derangement. But time, and a painful and degrading acquaintance with the consequences of error, are too often required to enforce the appeals of reason and experience with the headlong votary of irrational indulgence. It is only when the punishment consequent upon his own weaknesses and follies is being in the course of infliction that a candour, unlikely to obtain under any other circumstances, discloses to the safe keeping of the physician, "the secrets of the prison-house," and acknowledges the justness of his previous monitions in the necessity which now invites the application of his art.

There cannot be imagined a condition more distressing than that in which the depraved appetites are precluded from the gratifications to which they have been inured, or when the mind is estranged by the consequences of its own depravity from the excitements by which it seeks to escape from the horrors of reflection; it is then thrown back upon itself, and in the bitterness of disappointment becomes the instrument of its own punishment.

OF MATURITY.

The prime of life is supposed to extend from adolescence to about the forty-fourth year of our age. In this interval, both body and mind enjoy the maximum of their health and vigour; and all the functions of the several systems, corporeal and mental, in the condition of health, are so accurately balanced, that their operations are performed without our consciousness. It may be called the autumn of human power, the season when the ingenuous emulation of youth is destined to merge into the selfish ambition of ripened years.

Civilization is working many changes in the world as well as in ourselves. The flood-gates of knowledge have been opened, and intellect has received a most powerful impetus. The march of mind is steadily progressing, and whether we turn to the senate or the bar, to arts, arms, commerce, manufactures, or mechanics, we see all impelled forward into the current of intellectual exertion by the irresistible impulse of ambition, competition, or necessity. These conduits, through which the workings of the mind, and the operations of the passions exhaust their influence, are unhappily charged with many new and anomalous disorders, which circumstances tend to increase in number and to aggravate in character.

The redundant nutrition and vital energy now no longer required for the purposes of growth, occasion an injurious repletion of the circulating fluids, while the disproportioned exercise of the mind, compared with that of the body, disturbs the functions of the brain, which, by the influence of sympathy, already explained, disturbs in turn the digestive organs, when a system of reciprocal acting and re-acting upon each other is instituted, by which the balance of distribution and harmony of operation are destroyed, and a train of nervous and other disorders established, which fret the temper, and in numerous instances prostrate both body and mind.

I have stated that health and happiness must of necessity include an equipoise in the operations of the intellectual and corporeal functions. The maintenance of this balance constitutes the golden mean at which all should aim. Every avenue should be sedulously guarded, by which foul impressions, and physical causes of disturbance might enter, to obviate a consummation so much to be desired.

The subjection of the passions to reason, now that the arts of social life have rendered the sensibilities so morbidly acute, is certainly a task of no easy performance, particularly amidst the present strife of party—the hazards, struggles, and anxieties of business—the jealousies, envies, and rivalries of professions; and the privations, discontents, and despair of poverty. Yet it ought to be attempted, and as far as possible accomplished, as a mean necessary to the harmony of health, and the possession of tranquillity.

It is a fact worthy of notice, that under the influence of a tranquil and well supported mind, the body will bear long exposure to great fatigue, the poison of contagion, and a thousand other depressing agents, with seeming impunity; but in the condition which they induce, should the fury of politics, religious bigotry, tribulation of mind, or the withdrawal of any customary mental stimulus supervene, the latent evil will at once develope itself, and display its specific effects with its usual virulence; the moral causes appearing to be those which produced the bodily disorder.

Females are not more exempt from the consequences of mental affliction, or other inordinate exercise of the mind, than males. The prime of life is with them the grand climacteric where the balance turns which is to consign them to disease, or secure to them the enjoyment of lengthened years of steady health; but unfortunately there are few permitted to pass this period uninjured, for in addition to other obstacles, irregular hours, gossamer dress, irregularities in food and drink, passions of the mind, and want of exercise, interpose their caveat, rendering it too often the crisis of their fate, rather than that which is to bring them health and comfort. The inferences are obvious; the redundant blood must be repelled by strict temperance, and activity of body. The stomach, in fact, ought to be kept all but empty, and employment should as much as possible consist of, or be combined with, muscular exercise in the open air.

The avocations of the mind should be active and varied, no one train of thought, or other excitement of feeling, being allowed to usurp, or occupy for any length of time, the whole range of the intellectual faculties. All sudden transitions, whether of mind or body, should be carefully avoided; natural rest ought to be taken at natural hours; and food and drink regulated by the feelings of comfort produced by their use, and their effects in maintaining the harmony of the functions of the several systems.

The best rule of health is, to pay due regard to temper, temperance, exercise, and sleep. By good temper, the mind is preserved from disease, and by temperance and exercise, the body; and when both mind and body are exhausted, they are again recruited and restored to their former strength, by refreshing repose.

I would anxiously urge the application of these principles to the purposes of every-day life,—corporeal exertion aided by temperance, and intellectual occupation bounded by equanimity. These principles are neither Utopian nor difficult to apply. They are within the reach of high and low, rich and poor, learned and unlearned, and must be attended to, if the attainment or preservation of health be an object of serious consideration.

It is not my province to discuss the subject of marriage; but in connection with that of the means of promoting the condition most favourable to health and rational enjoyment, I may be permitted to say, that marriage obviously accords with the instincts and laws of nature; it advances the moral perfection of mankind, by preventing debilitating dissipation on the one hand, and cold and unnatural indifference on the other, and should therefore be recommended as the basis of social happiness, and as tending to promote and preserve that sanative medium, so necessary to the object of health and longevity.

OF OLD AGE.

Old age is said to commence about the sixtieth year from birth ; but there are many circumstances which concur to modify the period in different individuals in a physiological sense, and also to effect an inequality in the order of the decay of the several functions. In all cases, however, an observable change takes place in the circulating fluids ; the venous blood gradually assuming an excess, the veins appear swollen, and the pulse, from a diminution in the action of the heart, becomes slower : the power of generating heat, and of retaining it, is much diminished ; as is also the sensibility and irritability of the body. The energy of volition is enfeebled, and in those who eat and drink largely, perception becomes obtuse, discrimination less keen, and the mind more torpid. The skin also, is drier and colder than natural, which, owing to its relation to the internal mucous membrane, gives rise to affections of the air passages, lungs, and renal organs. The appetites, by a wise provision of nature, diminish, as the muscles become flaccid, and strength decreases. The increasing inaction of the secreting organs lessens the quantum of nutrition, so that the supplies are inadequate to the wants of the system. The laws of vitality, are therefore no longer able to counteract the chemical laws of decomposition, and deterioration, wasting, and debility supervene.

If the absorbent system fails first, effusions of aqueous fluid take place about the ankles, and into either the cavities of the brain, the chest, or the abdomen, accompanied with corresponding symptoms. If into the head, there will be drowsiness, thickness of speech, loss of memory, debility, and partial paralysis, or serous apoplexy; if into the chest, difficult breathing, cough, and restlessness; if into the abdomen, dropsy. But should digestion and nutrition be first affected, there will be atrophy, as well as dropsical effusions.

Sometimes the heart itself is the first to fail in its functions; in such cases asthma is found to be as frequent an accompaniment, as when the lungs are diseased. At other times the death-blight falls upon the liver, or some other organ, which it would answer no practical purpose to particularize, for, in the closing climacteric of human life, there is in fact a general breaking up both of function and structure. It is not, as in early life, a violent struggle between vigorous health and accidental illness, but the Lethean wand of nature's decay, that is settling into lasting repose, the exhausted processes of organic life.

Every physician is familiar with the symptoms of ebbing existence; and where prudence and principle direct the judgment, no medical treatment will be allowed to interfere with processes which nature has instituted for working out her own ends. Diseases should be carefully discriminated from changes irremediable in their nature. To control habitual symptoms, is often to suspend actions salutary to the system, and to accelerate a fatal event.

Life consists in a certain amount of an unknown influence, operating upon a variety of organs differently constructed and endowed. Whatever mode of living is best calculated to maintain the integrity of the functions of these organs, and whatever medical agency is found to restore their disturbed balance, may be considered that most conducive to length of life, and which should limit the province of the physician.

Old people ought to avoid all kinds of excess whose tendency is to impair their remaining strength. Exercise should be gentle and frequent, and if at all practicable, taken in the open air, and on foot. A moist atmosphere will be found better suited to the condition of the aged, than a dry one, which is apt to hasten the aridity of the vessels, and the advances of decay. All stimulants, peptic persuaders, tonics, and medicated nutriments, in the absence of air and exercise, are hurtful; and where the latter are available, the use of the others may be advantageously dispensed with. The skin should be kept clean, by means of the warm bath, and warm light clothing, and the liver roused by an occasional alterative.

I have adverted in another part, to the sanative effects of friction, and here, I will briefly recommend its use, as being peculiarly applicable to old age. Hippocrates, speaking of friction, says, "if violent, it renders the body more firm; if gentle, it softens and renders it more elastic; if plentiful, it extenuates; and if moderate, it increases its bulk."

As the organs of digestion lose their vigour, the aliment should be adapted to the degree of decline which invades the stomach and its subordinate parts; and therefore, the food of old people should be light, and moist, and eaten with a moderate proportion of the most grateful condiments. Mixtures of food should be avoided, for the most simple, bland, and easily digested food, may be spoiled, by mixing it with substances of difficult digestion.

The use of wine and fermented liquors, is more allowable at this period of life, than at any other; but as errors in diet are more dangerous, from the sudden and violent rushings of blood into the head, and the disturbance produced in the action of the heart, great caution ought to be observed, that no food or drink be taken beyond what nature requires for supporting the vital powers, and keeping up the languid action of the system. *Sanis uno omnia sana* does not apply here. Health and diminished powers may co-exist, if these powers are not overtasked, and farther reduced by injurious alimentation. Generally speaking, cheese and butter should rather be permitted than recommended. Uncooked vegetables, such as cucumbers, onions, celery, salads, radishes, water cresses, and pickles, are unsafe, and nectarines, apples, peaches, some kinds of plums, pears, and cherries, are apt to pass through the body partially digested, and to ferment in their progress, producing a train of evil consequences which it would be better to avoid. Dried fruits, such as figs, prunes, raisins, &c., are more indigestible than when fresh. The nut, and almond tribe, should be banished from the tables of the aged and delicate, as well as the whole catalogue of dessert refreshments, and sugared confections. Strawberries, raspberries, grapes, oranges, currants, and fresh figs, are occasionally salutary, and may be indulged in by the invalid and aged.

In dealing with the complaints of old people, much patience, discrimination, and caution, are necessary. An experienced and well-educated physician knows where to pause; he is deterred by knowledge and principle from unwarranted and officious interference in cases not susceptible of palliation or cure; but the ignorant and empirical, having no such check on their presumption, rashly discharge their drugs upon all symptoms, and pour compounds, of which they know little, into bodies of which they know less, with results it would be but supererogation to dwell upon, seeing they can be understood only by such as require not to be cautioned against them.

When the strength of the constitution becomes incapable of maintaining the healthy balance of the systems, and the course of nature to gradual decay and death, cannot be arrested by ordinary means, all that need be looked for from medicine, is to nurse and cherish the powers and principles of nature which yet remain,—to point out, and carry through her indications, and to relieve pain.

Cough is very often a troublesome symptom in old age, yet it is generally a wise provision of nature, to effect a salutary purpose; for owing to the impaired functions of the skin, the mucous membrane of the air passages and the lungs, takes upon it to relieve the blood of those impurities, which formerly passed off by insensible perspiration by the secretion of a glutinous discharge, which requires a cough for its extrication, and to check this cough and secretion injudiciously, is often to do irreparable mischief.

To prescribe for the discharge of animal matter, (lithic acid) through the urine, requires equal discrimination and judgment, and where there is no tendency to concretions in the kidneys, &c., this excretion would perhaps be better let alone; for when it is inconsiderately repelled by medicine, serious affections supervene in various organs, but more particularly in the brain.

By a proper understanding of, and a due attention to, the indications of nature, old age may not only be much prolonged, but it may be rendered comfortable and even happy.

The general principles already laid down, and the observations yet to follow upon dietetics, clothing, the use of the bath, &c., will convey a sufficient knowledge of the circumstances to be attended to in the management of old age; but as a slight deviation from strict regimen is attended with immediate and often with serious results to the weak frames of the aged, it may be as well to notice here, that spirituous liquors exercise a more baneful influence at this, than at any other period of life, excepting infancy, and should not therefore be allowed but when ordered by a physician as a medicinal agent.

Old people should avoid night air, nor should they expose themselves incautiously to the morning air, when it is very cold, or to damp vapours, cold winds, fogs, or sudden transitions of temperature. They may indulge in eight or ten hours' sleep, during the twenty-four, with advantage. Watching will be obviated to a considerable extent, by a half hour's exercise, and a very light supper, before going to bed. Friction, by means of a flesh-brush, will also promote sleep.

The predominance of anger and of avarice, (two besetting sins of age,) as well as of all other hurtful passions, should be combated by reason, and the moderate application of the mind to agreeable studies, rational enjoyment, the exercises of religion, and the duties we are yet capable of performing in our social relations, and particularly in the circle of our family and friends.

Old people will find much benefit in mixing with the young, rather than with those of their own age. In the decline of life there are many causes besides the natural decay of youthful vivacity, which conspire to destroy cheerfulness. Experience has then exhibited the realities of life, divested of the garnished drapery and gilding, with which the youthful imagination was wont to adorn them. Disgust, suspicion, gloom, and disappointment, have now succeeded the gay prospects of earlier and more happy days. The temper is soured, and the heart contracted, and when such congenial spirits congregate, to brood over their grievances, and the degeneracy of the world, they mutually increase their unhappy tendencies of mind, and curtail their own pleasures. Different dispositions and characters, judiciously blended, are necessary to the harmony of social life. The levity, the rashness, and the folly of youth, are tempered by the gravity, the caution, and the wisdom of age; while the timidity, coldness of heart, selfishness, and languor of the aged, are assisted, softened, and supported, by the courage, generous warmth, and vivacity of the young. For a healthy sympathy, as well as a morbid infection, may be transmitted from one mind to another, which, although wholly inexplicable by reason, is sufficiently demonstrated, in the similitude of manners, and characters, induced by people living much together, and in the sudden communication of terror, melancholy, joy, and excitement, when no selfish cause can be assigned for the presence of such emotions. Those of the aged, who allow themselves to be influenced by this philosophy, imperceptibly recal by an agreeable sympathy, the images impressed upon the memory in early life; and instead of envying or proving a check to the rational amusements of young people, and particularly their own children, they view with delight the development of reason, and the gradual opening of the imagination; and although they are no longer susceptible of the enthusiasm of youthful pleasures, the asperities of the temper may be smoothed down, and their hearts warmed by the glow of reflected benevolence and retrospective associations.

Serenity of mind contributes much to health and enjoyment in the decline of life. Abstemiousness is powerfully calculated to promote such a condition, which is more required at this, than at any preceding period.

It is a vulgar error to suppose, that old people require to eat largely. It is not the quantity eaten, but that which the digestive organs can yet convert into healthy chyle that we should consider; and seeing that the powers of these organs are much impaired by age, and that the supplies required are comparatively small; to load the stomach, is in fact to defeat the very object it is intended to serve. Nature rarely suffers from abstinence, but always from repletion. In the former case, the waste and exertion only require to be diminished commensurate with the defective supply; in the latter, the vital organs are overpowered and unable to throw off a superfluous burden, hence the local congestions, topical inflammations, effusions, and sudden deaths so prevalent amongst old people.

Should general plethora, or fulness of habit arise, from indiscretion in eating, want of exercise, or any other cause, it will in all cases constitute a dangerous symptom. The prejudice of the aged, and even of many physicians, against blood-letting in such circumstances, must be overcome; for the feebleness of senility will often be found to depend upon sanguineous congestion, and can only be removed by prompt depletion, which, however, must be directed with measured caution, and a perfect understanding of the mode in which it operates.

The man is to be envied, who, when on the verge of eternity, can look back upon a well-spent life—who early imbibed the cheering doctrines of Christianity—who acted upon its precepts in riper years, and who never doubted the nature of its origin, or the fulfilment of its promises; he, and he only, is happy. The infirmities of age disturb not his composure, and the prospect of dissolution is contemplated by him, as the entrance to immortality.

OF INDIGESTION.

I have already shewn that the human fabric is built up, and afterwards sustained, by means of digestion; and that on the healthy functions of the several organs concerned in this process, the health of all the other parts of the body mainly depends. These organs and parts are so intimately associated in office, that derangement in any one of them, draws in the others to a participation.

The inner surface of the alimentary canal, (the stomach and bowels) is lined by a delicate tissue, already adverted to, under the name of "mucous membrane," which is constantly supplying a fluid adapted to the several stages of digestion. When this membrane is inordinately excited by the nature or quantity of the food or drink imbibed, the operations of the mind, or the motions of the body, its function becomes impaired, and the fluid which it secretes is altered in amount, and depraved in character, so as to render it unfit for the purposes of digestion and assimilation. A source of irritation is thus generated which is communicated by sympathy to all parts of the system, and again reflected back upon the organs of alimentation, impairing still farther their conservative functions, and inducing general debility and disease. It is thus that we account for the nervous and dyspeptic affections resulting from the habitual use of purgative medicines; the action of which, being in most instances mechanical, stimulates the intestinal passages, increasing and vitiating the secretions, so as to render them unfit for the solution of the aliment. The source of restoration and of health is thus converted into a laboratory of disease, an arena of conflict where the alternative of life and death is to be finally determined.

Indigestion, considered in its abstract relations, arises from an atonic, or torpid condition of the organs concerned in digestion—morbid irritability,—chronic inflammation,—depraved secretion, or repletion. One or other of these conditions may exist separately, or they may be combined in various degrees,—confined to particular parts, or extensively diffused throughout the alimentary canal.

The symptoms of indigestion are innumerable, and involve the workings of the mind, as well as the operations of the body. The physical indications will generally be found to include a disrelish for food,—a sense of fulness and pain in the region of the stomach,—heartburn,—derangement of the bowels,—neuralgic pains in the head, chest, &c.; dry whitish, or furred tongue,—restlessness at night,—unsound sleep, followed by a sense of weariness and want of refreshment,—depraved dejections,—flatulence, and a dissatisfied expression of countenance.

Indigestion is the offspring of civilization, and in nine cases out of ten, may be traced to injudicious education, mental emotion, sedentary habits, want of proper air, intemperance, or plenary indulgence.

Indigestion long continued, will occasion other disorders, as organic lesions, dropsy, or phthisis, or it may exist as a symptomatic affection, dependent upon structural alterations, already existing in some part of the stomach or neighbournig viscera.

It requires no ordinary discrimination and tact, to trace the symptoms which distinguish the phases of this malady to their original source, and even when this has been done, it is frequently as difficult to persuade the patient that he has erred, and that his cooperation with the means recommended is necessary to his cure.

Want of appetite, strictly speaking, is not a disease, but merely an indication of nature, that some violence has been done to her laws; that more food has been taken into the stomach than it can digest, or than the waste or wants of the sytem require.

It is a vulgar and dangerous error to imagine that the more we eat, the stronger we will become. The reverse would be nearer the truth, for most diseases derive their origin from repletion, and to eat moderately will be the best way to escape them.

This is no new doctrine; the ancients prior to the days of HIPPOCRATES were conversant with it. DIODORUS SICULUS has said, that "the *greater part* of the aliment we take in is superfluous, which superfluity is the cause of our distempers."* And HERODOTUS, while descanting upon the Egyptians and their customs, remarks, "they vomit and purge themselves thrice every month, with a view to preserve their health, which they injure by excess of aliment.†

The late MR ABERNETHY held similar opinions, "Men fill," says he, "their stomach and bowels with food, which actually putrefies there instead of being digested; they also fill their blood-vessels until they oppress them, and induce diseases in them, as well as in the heart." In fact, if the organs concerned in digestion were capable, in all cases, of elaborating a maximum quantity of chyle from the ingesta taken into the stomach, the result would be a state of general oppression and engorgement of the circulating medium, and consequent predisposition to congestion, inflammatory attacks, and apoplexy. The many sudden deaths from these causes, afford proof, that the digestive organs do possess in some cases such powers, and that the results are occasionally fatal. More frequently, however, nature interposes in favour of life, by diminishing the vigour of digestion, and refusing either to receive or concoct more than a necessary supply of aliment. Indigestion ought therefore to be viewed primarily as a provision of nature, to defend the system from repletion and other dangerous conditions.

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* Bibl. Hist. lib. 1. p. 92.

† Euterpe, sect. 77.

There is scarcely a malady to which the human body is obnoxious, that is not benefited by a diminution in the quantity of our sustenance. Nature enforces this truth by impairing or altogether withdrawing the sense of hunger on the approach of disease. But so far from benefiting by this fact, if the appetite be but suspected of diminished keenness, or if it indicates a feeling of oppression or pain from over-eating or other abuse, tonics, caudles, and condiments are in immediate request, with the natural and certain effect of diminishing still farther the digestive powers, and of inducing a train of new and more aggravated symptoms.

Debility, whether local or general, is but a mere effect of a deranged or altered condition of the function or structure of some organ or part of the body. It is too often made, even by physicians, the subject of medical treatment without reference to the operation of its cause, and without knowing or considering that it is the means which nature opposes to the farther inroads of disease.

How very seldom do we hear of inflammation, apoplexy, or ruptured blood-vessels occurring amongst temperate livers, or invalids, and how often, on the contrary, are our feelings harrowed by the astounding accounts of sudden or mysterious deaths, succeeding to violent exertion, heavy dinners, and convivial suppers. These accidents can only be referred to a redundancy of blood from inordinate eating and forced digestion. The blood-vessels are overpowered and become congested, or inflamed, or they burst and precipitately destroy life.

In less vigorous constitutions, and in the absence of sudden repletion and excitements, when the stomach has been overworked, and its villous coat weakened, it is incapable of furnishing a sufficient quantity of the juices required for the purposes of digestion, and therefore the food with which it is filled, ceases to act as its natural stimulus, and instead of being digested, it is either rejected by vomiting, or remains, as MR ABERNETHY has observed, to putrefy: hence bad breath,* acid eructations, and other dyspeptic symptoms; nor is this all, for on passing from the stomach to the lower bowels, which are not adapted to its presence, it irritates them, producing colic, diarrhœa, over distention, torpor, or some such unnatural condition. To obviate this, and to remove the superfluous and offending matter, recourse is had to purgative medicines, and so far the practice is justifiable, provided time would be allowed, and proper means adopted for restoring the impaired tone and functions of the organs concerned, and for maintaining them in their improved condition; but unhappily the stomach, which has been perverted by long abuse, is no sooner cleared out (the temporary feeling of emptiness which follows, being mistaken for the sensation of hunger) than it is again stuffed as before, when the former symptoms as a sequence recur, and with them the necessity for the former practice to get quit of them, and although pill is added to pill, and dose to dose, and bitters and boluses are swallowed, and the stomach coaxed by savoury food and the resources of cookery, still the end is unattained; the mischief continues to increase, and the patient continues to lament and wonder that the means are so inadequate to the end.

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* Those who use much animal food, and particularly if excluded from fresh air, have generally an offensive breath, and a heavy unpleasant odour from the skin, while those who subsist much on vegetable food, have seldom either bad breath or offensive perspirations.

One would think that common sense, and an observance of the effects of this irrational warfare against health and comfort, would be sufficient to point out the plain course by which to obviate such a self-imposed life of misery.

The quantity of food in such cases will require not only to be diminished, but care must be taken that it be of such a nature as to excite the digestive organs to healthy activity. The aid of exercise is indispensable; and such medicine only should be used as is calculated to assist the general indications of nature, in promoting and preserving the healthy functions of the stomach and bowels. This is the rational but least practised course. Physic and food, however injudiciously applied, are expected to effect everything, and wherein they fail, the fault is laid to the constitution, which is pronounced so bad, or so much impaired, as to admit only of palliatives, and to justify the perpetual murmurings of discontent.

Rules of diet may nevertheless be pressed too far as well as too indiscriminately. The mind of the dyspeptic should rather be diverted from his stomach, than directed to dwell upon his morbid sensations. His very anxiety in this respect, will be apt to generate the evils which the object is to remove. However necessary rules of diet may be, their moral effects require to be observed; for if they are found to worry the mind, and fret the temper, they must be relaxed, or altogether disused.

Reasonable and regular hours of taking food, are no doubt highly beneficial, but if to procure this the dyspeptic is obliged to forego society at the times of eating; if he is forced to retire to a solitary meal set apart for his express condition, the benefit he might otherwise derive from regularity will be superseded by the attention being thus directed to the feelings and functions of the stomach, and the apprehension of indigestion.

A morbid attention to a systematic operation of the lower bowels is calculated to interrupt the process of digestion in any of its stages, and thereby prevent that regularity which is so much desired, and which is often in like manner prevented by the means used to promote it. Here also the mind should be disengaged as much as possible from a presumed necessity, which in most cases is but injurious in proportion as it is seriously regarded.

Rules lose much of their value in practice, when too multiform and rigid. We must take human nature and society as we find them,—doing good, when, and as we can, and not by aiming at too much, forfeiting that which may be gained by more simple and compendious means.

It will be readily inferred that the proper application of dietetic rules requires much discrimination, and implies a thorough knowledge of all that reason and experience have sanctioned, as applying to individual cases. General maxims are all that can be condescended upon in a general treatise; and as I mean to consider some of the most useful of these in another place, I will merely advert here to one or two circumstances which may serve as a foundation for lesser injunctions.

One important rule to be observed at meals is, to masticate the food well, and eat slowly.

Eating hurriedly is a fertile source of indigestion; for the aliment is not only imperfectly masticated, and sent into the stomach without a sufficiency of saliva; but we are apt in such circumstances to eat more than we require; whereas by eating very slowly, chewing the food well, and pausing between whiles, the stomach has time to act upon what has been already swallowed, and we can better judge when the necessary wants of the system are supplied.

A little observation will serve to convince any one, of the uneasy spasmodic re-action produced by rapid eating and hurried meals. It is, in fact, one great cause of dyspepsia to the sedentary and solitary, and not less to those who eat as they live, in a tumult of business, measuring their meals by minutes stolen from the bustling hours of labour.

We should in all cases desist from eating at a point short of uneasy repletion, for when the stomach is over-distended, digestion is not only impeded, but partial paralysis of that viscus is produced, which affects in a greater or less degree the functions of all the other organs and tissues of the body. No reasoning or quotation of cases is necessary to demonstrate the mischief hence derived. Universal experience is the argument here; both as to the bad effects of single excesses, and of those lesser habitual indulgences which slowly and insidiously accumulate a store of evils, that, during the whole period of life, affect in various degrees the functions of both body and mind.

It is matter of general observation, that great eaters are more callous than such as live temperately. Their sensibilities become more obtuse, and in time degenerate into an indifference equally unaffected by their own fortunes and misfortunes as by those of others.

During the earlier and more active periods of life, when every organ and fibre is fraught with motion, and waste and growth are making constant claims upon the stomach for fresh supplies, our natural instincts demand nutritious aliment, commensurate to the object of these claims, by which our stomachs are early taught to imbibe largely, which afterwards becomes a habit, and continues after growth has been completed, and exercise and waste have ceased to draw so largely upon the *vis plastica* furnished by digestion. The result is, that sick headaches, bilious attacks, and other analogous ailments supervene, which increase in number and severity, in spite of all the arts of physic, so long as the exciting cause is allowed to operate.

The habit of eating as copiously in the altered circumstances, and comparative inactivity of mature age, as in early life, when the demands upon alimentation are incessant, the appetite keen, and the digestion rapid, cannot be persevered in with impunity. If we would enjoy health, we must do something to promote it. Indulgence must be restrained—the ingesta proportioned to the requirements of nature—the artificial cravings of injurious habits controlled, and the stomach regulated by the dictates of reason, and our own feelings of ease, quiescence, and comfort. Nor are the respective stages of life the only considerations to be attended to in regulating the comparative amount of ingestion ; there are others equally prolific of disease, and of these I would more particularly draw attention to the habit of uniformity in the quantity of food taken at a meal, which, instead of being proportioned to the exercise or labour which preceded it,—the exhaustion of nervous and vital energy requiring stimuli, and the waste requiring supplies, the same amount is imbibed daily whatever the mode of life or extent of exertion may be. It is no uncommon thing to see females, who seldom go abroad, and males of purely sedentary habits, consuming as much food as they would do if undergoing severe exercise in the open air. The consequences of this error, although constantly operating, are seldom if ever attributed to their proper cause.

It must not be inferred that an occasional stretch of exercise on the part of those unaccustomed to it, will create appetite and promote digestion. On the contrary, if a delicate young lady, accustomed to rise at eleven, get up some fine morning at six, and walk two or more hours before breakfast ; or if a man of letters, engaged in study all day, walk four or five miles before his late dinner ; the result will be that the mouth will feel clammy, the head will ache, and the appetite will fail ; or suppose, when in this state, under the idea that the more labour the more ought to be the quantity eaten, such a person was to take a more hearty meal than usual ; it would certainly be followed by oppression in the stomach, flushings of the face, difficulty of breathing, and a tossing restless night haunted by fearful dreams. The fact is, if the nervous energy and bodily strength be exhausted, whether by fatigue, fasting, study, or otherwise, the powers of the stomach will be exhausted likewise. The vital organs cannot accommodate themselves at once to sudden transitions of habits. General laws and collateral conditions must be attended to in all important changes, as well as in apportioning the quantity, selecting the quality, and regulating the periods of aliture.

General exhaustion requires an increase of the energies of the nervous and vital powers to re-establish the balance of the system, and therefore the stomach during fatigue should not be taxed with the performance of its functions, for its digestive powers will be impaired from a laxity of that vigour which is diffused for general purposes. Neither should we exert ourselves too much immediately after taking food, for by that means we withdraw from the stomach the vascular and nervous influence it requires, and direct it to other channels.

If the sleep be natural and refreshing, and we awake in the morning without headache, or a bad taste in the mouth, it is a sure indication that the preceding day has been spent conformably to the laws of health and the rules of temperance.

Although more mischievous consequences

accrue from over-eating, than from its converse, in estimating the mean of nutrition, the actively employed artizan and field labourer must not be classed with the slothful, the sedentary, and the studious. The quantity of food required by the former, would be destructful to the latter, and what would be sufficient for the latter, would be quite inadequate to the necessities of the former.

An impoverished diet, insufficient for the purposes of supplying the waste of the system, and the maintenance of nervous and vital energy, not only deteriorates the moral, the intellectual, and corporeal capacities, but will be found to predispose to organic affections.

The lack of proper knowledge, and the consequent improvident and dissipated habits of the working and lower classes, are more frequently the cause of the privations, misery, and disease found amongst them, than the inadequacy of their earnings to provide wholesome food and the other necessaries of life. In utter ignorance of the structure and laws of the animal economy, their money is too frequently spent on stimulating drinks, instead of food and domestic comforts ; they thus lose all relish for plain nutritious but insipid articles of diet, and resort to such as are savoury and piquant but innutritious. Comfortless, ill-ventilated lodgings, defective clothing, and consequent decrease of animal temperature, give fearful activity to the advances and progress of disease. The obvious remedy here, is knowledge, industry, prudence, and economy; the proper application of these will lead to a more suitable provision for the wants of the body and a practical acquaintance with the principles of health and rational enjoyment.

It is asserted by pathologists, and upon no slight evidence, that indigested feculent matter in the lower bowels gives off much of its impurities, by means of the absorbents, to the blood, and through it exercises a morbid influence over every secretion and organ of the body.

One of the most annoying effects of impaired digestion, and the diminished secretion of the antiséptic or antifermenting fluids furnished by the stomach, is the presence of acid there. The food ferments and turns sour, evolving gas during the process, which, on rising from the stomach, brings up with it some of its acid fermenting contents, producing a burning sensation in the throat, and heat in the chest, known by the name of heartburn. People are apt, under such circumstances, to resort to the indiscriminate use of alkalies; but the intelligent reader does not require to be told, that such a practice is both unsafe and unscientific, for the gastric juice, being itself an acid, the frequent exhibition of alkali will neutralize and render it inert. There are, however, cases wherein the blood becomes to a certain extent acid; giving rise to cutaneous and other diseases, which require for their removal the use of this class of medicines; but generally speaking, their exhibition requires caution, being prejudicial to digestion, irritating to the stomach and renal organs, and very impoverishing to the blood.

Acidity of the stomach should be viewed as debility of the stomach, the former being a mere symptom and effect of the latter. The indications of cure consist in a restoration of its lost tone, in conjunction with that of the general health; but the immediate cause of acidity being fermentation, care should be taken to avoid green vegetables, pickles, pastry, and other such articles of diet, as are apt to induce or assist this process. Twelve or fifteen drops of the elixir of vitriol, taken in a little water, an hour before meals, will often prevent fermentation, and the consequent presence of acid in the stomach.

A little carbonate of magnesia, or about thirty drops of the aromatic spirit of ammonia, will be the most proper, being the least weakening alkaline remedies for neutralizing acid in the stomach.

Calcined magnesia is improper; for if it do not meet with an acid in the stomach and bowels, it acts injuriously, by abstracting from the necessary quantum of carbonic acid.

If the views I have propounded be correct, no rule of universal application can be laid down, by which to regulate the treatment of indigestion, involving as it does so many different conditions of the several systems. Atony will require, in conjunction with other indications of treatment, the use of vegetable bitters, and a careful adaptation of the diet to the digestive powers. Disordered secretions will require the use of alteratives, laxatives, and absorbents. Irritability and spasm may be removed by a bland nutritious diet, and antispasmodics; and inflammation by leeches, blisters, and abstinence from animal food and stimuli.

These several conditions may, however, be indefinitely combined, requiring much discrimination in determining the proper mode of medical treatment; hence we often see chronic inflammation aggravated to the most distressing degree by bitters, and brandy; and atony increased by the repeated application of leeches and a lowering regimen, when a generous though light diet would have been more appropriate.

The influence of free air is highly beneficial in all cases of indigestion, and cannot be too strongly commended in directing its treatment. Close, warm, or crowded rooms will have a very opposite effect, and should be most religiously avoided. Languid and listless, the dyspeptic willingly indulges his predilection for indolence and confinement, trusting to drugs for invigorating his frame, and digesting his food; but which, instead of alleviating, add to his maladies, and confirm his healthless habits. Neglecting or avoiding fresh air and suitable exercise, he forfeits the safest and best of all remedies. The most marked symptom of indigestion is the enfeebled circulation of the blood through the extreme vessels. This is obvious in the condition of the skin, and of the extremities of the body, and which, as it predicates a corresponding feebleness in the action of the heart, must of a consequence affect the capillaries of internal surfaces and secreting organs, and in this way account for the altered and disturbed state of the several systems, and for many of the multiform symptoms of indigestion. Here the better arterialisation of the blood and augmented force of the circulation are obviously indicated, and which can never be attained in the absence of fresh air and bodily exertion. Without these all other remedies will be of little, if of any avail.

The important and ever-operating relation between the skin and internal surfaces should always be kept in view. It will serve as a basis to many facts, both in pathology and practice. A due regard to the indications of this relation will obviate many diseases, to which, through ignorance or inattention, we are constantly exposed. It is in this way that a thin flannel roller pinned firmly around the abdomen, is found to be of so much advantage in the treatment of indigestion. It promotes the circulation in the cutaneous vessels, and assists in maintaining the balance between the external and internal surfaces. It relieves also the uneasy feeling and impeded functions induced by distention.

OF HYPOCHONDRIASIS.

Some writers use the term hypochondriasis synonymously with indigestion, but having considered the latter in its purely physical relations, I mean to discuss the former more as a moral or mental ailment, involving the operations of the senses, as well as perception and the other attributes of the mind.

Temperament exercises a considerable influence in determining the character of hypochondriasis, which, in the nervous, melancholic, and lymphatic, is often blended, if not actually identified with some one or other of the varieties of monomania.

Sedentary habits, severe and protracted study, indulgence in grief, lack of society and of social intercourse, sudden change from an active public life, to an inactive secluded one, intemperance and dissolute practices, will often excite this affection in all its multiform phases, even when the predisposing temperament is absent.

Hypochondriasis presents two distinct genera, which branch out into innumerable families; the one takes its rise in the mind, and comprehends certain abstract phenomena, such as grief, despondency, despair, &c., indigestion being merely a symptomatic or secondary effect; the other originates in corporeal causes, and its secondary influence furnishes a series of hallucinations relating to the patient's own body.

The sudden effects of mental emotion upon the appetite and digestion, and the reciprocal action and sympathy of parts, have been already noticed. Medicine, however it may palliate or remove collateral lesions, exercises no beneficial influence when the mind is the seat of the disease.

The distinguishing diagnostic between these two forms of this affection, is, that in the one, mental emotion precedes the dyspeptic symptoms, and in the other, dyspepsia precedes or accompanies the mental disturbance from the commencement.

In mental indigestion or hypochondriasis, the patient is comparatively indifferent about the symptoms of bodily disease which assail him. The giddiness in the head, pains, palpitation, and stomach complaints, are but lightly estimated when compared with the distressing conviction he at times feels of the presence of a deep-seated and overwhelming sorrow, which has withered his energies, and ruined his hopes and happiness for ever.

The physical hypochondriac, on the contrary, fancies himself the subject of some extraordinary concealed malady. Incapable of healthy reflection, and ever seeking causes for fear and anxiety, he is continually occupied about his eating, drinking, physicking, and feelings—he is in perpetual dread of some pending danger, or that he is suspected of having committed some grave crime, or that he may become the subject of destitution, or madness, or such like catastrophe—he is tired of life, yet he clings to it, and shrinks from the bare idea of death with a pitiable horror—he likes and dislikes by fits—everything palls upon his senses—he grows peevish, and quarrels with his best friends—is malevolent or misanthropic, or both—he thinks everybody has an ill-will at him, insults him,—is deficient in respect or sympathy for him, or neglects him —he goes to bed, rises again, is listless, takes more physic or food; still his disorders and listlessness cling to him, nor can he find alleviation for his mental distresses, or remedy for his bodily ailments. The mind in such circumstances is fickle and prone to change. Prejudice and fashion rule reason and experience; it need not therefore be matter of surprise that the sufferer should be found running from one medical adviser to another, and often preferring the large professions and vague obscure treatment of ignorant empirics, to the obvious means and scientific advice of the conscientious physician.

The proximate cause of all these morbid symptoms, is congestion in one or more of the abdominal viscera, from weakness of vascular action, or diminished and acrid secretion of gastric juice and bile, an altered condition of the skin, and torpor of the lower bowels. The remote cause and indications of cure may be inferred from the general principles already laid down. Riding on horseback,—active occupation,—change of air, or scene,—the use of friction, and the shower-bath will greatly promote the latter, for it is upon exercise, associated with a well-regulated and temperate regimen, and not upon any of the artifices or felicities of pharmaceutical compositions, that the dyspeptic is to depend principally, for a defence against his painful and fearful maladies.

Mental hypochondriasis generally obtains in those whose minds are constituted for the highest degree of pleasurable excess, and the most acute sense of superlative misery. In other words, morbid sensibility, irritability, and despondency, are essential attributes of mental hypochondriasis.

A generous, noble, and sanguine nature, whose loves, hopes, and every feeling are in advance of the judgment, whose early education and discipline have failed to teach the lessons of self-control, and which expects too much from those inferior natures that surround it, finds in the death of its own wishes and creations, and in the memories of bygone errors and misfortunes, additional pretexts for the silent gloom of indifference and retaliating misanthropy which preys upon it, and which scorns the sympathy of such as it cannot but despise.

The patient may be in the enjoyment of the most pleasurable feelings of which he is susceptible, when a word spoken, a place or an object catches his eye, or a thought flits across his mind, and directly a train of painful associations, the subjects of anterior grief, are awakened and inflamed; the imagination is morbidly excited, darting pains shoot through the head, which becomes confused and giddy. The stomach which was before quiescent, now sympathising with the brain, is disturbed in its functions—feels loaded and uneasy, and re-acts upon the brain, increasing the cause of its own discomforts. The symptoms increase in virulence until the unhappy patient seeks seclusion from the eye of observation, and often wishes for, or rushes upon death as a lasting relief from his miserable feelings. Too proud even in dissolution to incur the smile of derision, or the proffered sympathy of the ignorant and unfeeling who pronounce him *nervous*, he complains not, he seeks no advice, nor does he resort to either physic or physicians for relief; he knows his malady to be a redundancy of undisciplined feeling, beyond the reach of drugs; he wishes only to be alone; to shun everybody and every cause of distraction of thought; to see nothing, to hear nothing. Even the grating of a hinge, the slightest noise, or a rude word or visitor, will act like electricity, and vibrate with exquisite torture through his sensitive frame. Yet even in this condition a soothing word from a beloved object, pleasing intelligence, or the sound of a favourite air breathing upon his ear, or a passing thought forcing in through the gloomy halo that envelopes him, will burst the spell, and divert the current of destructive thought into another and more agreeable channel, when a little recruiting energy is but required to fit the sufferer for again entering upon the intercourses of social life.

Although indigestion is not the primary cause here, the irritability of the brain and the nervous or mental emotions, will be greatly increased by a morbid condition of the digestive organs.

An over-refined education, and an irritable brain, when fostered by early indulgence and want of acquaintance with the discordant realities of every-day life, and favoured by temperament and a luxuriant imagination, will be found amongst the most common of the proximate causes of mental hypochondriasis.

The proper management of this affection can only be directed by a physician possessing that intimate knowledge of the human heart which must be drawn from life itself, and which books can never teach; for although the symptoms are not so critical in kind as they are in acute and dangerous diseases, still they require moral management, and discreet methods of medical treatment. Forbearance and firmness are equally necessary, as well as integrity, good faith, and a thorough knowledge of the art of insinuation and persuasion, and of successfully opposing false and unnatural associations. In almost every case it will be proper to exclude all acquaintances and persons whose presence causes mental excitement by their familiarities and rudeness of manner, or by awakening dormant recollections of a painful character. Those who cannot be refined themselves should at least learn to be humane, and to treat with respect what they will never understand.

All causes of stomachic and cerebral irritation, if any exist, will require to be removed, the brain strengthened, and the general health attended to; but the chief dependance for relief should be centred in the adaptation of the moral and intellectual treatment to the patient's tone of mind and peculiarities of feeling and reasoning. His affections must not be estimated lightly, but treated with a consideration equal to their importance, otherwise his confidence will not be gained, nor will he condescend upon the particular symptoms which afflict him, or the circumstances which excite and aggravate them.

It will often be of the last importance to change the patient's residence—to remove him to a distance from places, persons, and things he has been accustomed to look upon, and whose presence are associated in his mind with the sources of his misery. He should be as little as possible alone, and when he happens to be so, he ought to be constantly employed. Writing letters, memorandums, and commentaries, walking in company, riding, and such like occupations, will divert the attention and promote the general health; distraction of thought being the great desideratum to be attained. To reason, or to recommend reasoning with such patients upon the folly and fruitlessness of the encouragement given by them to their gloomy feelings and reflections, would be worse than folly. They lack neither reason nor understanding, and are as familiar with all the truisms applicable to their condition as others are, but they know that reasoning, instead of soothing, aggravates them, and therefore they avoid it, and they avoid likewise the persons who would unfeelingly keep alive their festering recollections by embodying them in common-place language, and making light of them by trite observations upon their nervous and imaginary character. For, however superficial observers and medical men may estimate these ailments, they are not the less real and dependant upon the operation of existing causes, whether or not they be able to detect or remove them.

Montesquieu thought reading a never-failing remedy for all mental evils, and it certainly does do much to alleviate them; but I have found literary composition a more efficient remedy against the attacks of these most distressing affections, than any with which I am acquainted. I was first induced to try its effects, from having read an essay on the subject by Dr Fletcher, and I have found it equal to the encomiums he bestows upon it.

Keeping a daily journal of passing events—making selections from entertaining books, altering the phraseology, but retaining the ideas contained in them, and such like exercises, when by strong moral efforts they have become a habit, never fail to become a delight, and wholly to engross the powers of the understanding, so as to leave no vacuity for the occupancy of distressing reflections, for

> " It is the mind that maketh good or ill,
> The wretch or happy."

And who, I ask, has not experienced in his own case, that many mental and bodily pains have been charmed away by the report of an engrossing piece of unexpected intelligence—the cheering countenance and conversation of a friend—the perusal of a fascinating book, or, by repeating to himself various passages from some favourite author.

MISCELLANEOUS OBSERVATIONS RELATING TO THE PROMOTION AND PRESERVATION OF HEALTH.

A knowledge of the mechanical and chemical effects of drugs is not the only requisite necessary to their proper administration. Many circumstances conspire to modify these effects, and to disappoint the object for which they are exhibited. Thus the influence of habit is sufficiently apparent upon the functions of the living body, more so indeed, than the exercises of the mind. Habit in fact, to a certain extent creates us anew, rendering us the very creatures of those circumstances to which we have yielded, or of which we have availed ourselves in modifying and deteriorating our own nature.

Every vital function is influenced by habit. The daily use of the same medicine will render it in many cases inert; while the properties of the medicine will remain unimpaired, but, on changing the mode of its exhibition, the first effects will be reproduced. A confirmed opium eater will imbibe with impunity, what would at one time have destroyed life. Some medicines, such as castor oil, require to be reduced in quantity when used continuously. An ounce, for example, gradually lessened daily to a drachm, at the end of a week will be found equally powerful in the last as in the first dose.

Tartar emetic will at first produce vomiting and purging, and reduce the pulse, but in its continued use these effects will disappear, and on the fifth or sixth day, a new set of symptoms will set in. The appetite will fail, the body will waste, and the countenance will become pallid, and expressive of great anxiety. The inference to which these observations lead is self-evident. To augment, diminish, suspend for a time, and resume the use of medicine, and to take advantage of habit in modifying its action, is the province of the physician, and should not be ignorantly or recklessly interfered with, by those likely to be benefited by his knowledge and experience. There are nevertheless circumstances, in which during the presence of disease, a patient may be allowed to judge for himself, provided he be influenced by the impulses of his own sensations, without venturing to theorise upon them; and of these circumstances the temperature of the surrounding media, and the use of cooling applications in cases of fevers, eruptive diseases, &c., may with safety be conceded to his judgment. His desires also regarding food and drink, when urgent and continued, should be cautiously respected, for the stomach is in general the best expounder of the natural and necessary wants of the system; and the safest monitor in dictating the quantity, quality, degree of heat, and consistence of the supplies which these wants require. When therefore the physician is assured that the wishes of the patient are dictated by bodily feelings alone, he may safely trust to them in as far as they relate to fresh air, temperature, methods of motion, repose, and articles of diet; but medical rules must be strictly applied to mental exertion, for in this a patient is seldom capable of estimating his own powers, and may do himself irremediable injury if left to follow out the purposes of his will.

OF THE INFLUENCE OF MIND IN MODIFYING THE ACTION OF MEDICINES.

Whatever views we may entertain of our spiritual being, it must be conceded that material agency influences the emotions and passions of the mind, and that intellect is intimately blended with the operations of the organs of the body. Who has not felt how directly the heart is involved in the expression of the passions. In fact it is only when under their influence that we feel we have a heart. When roused by anger its pulsations become rapid and powerful—the blood rushes to the brain, infusing nervous energy into the muscles, and endowing them with a temporary accession of unmeasurable and often uncontrollable strength. On the contrary, when any of the depressing passions are incited, the contractions of the heart become vacillating, feeble, and trembling. The brain is irregularly supplied with blood—the mind becomes wavering and irresolute, and the muscles weak and debilitated. It would be impossible to select a more striking illustration of the agency of the mind upon the body, or one that applies so directly to the subject of vitality.

Sterne facetiously compares the mind and the body to a coat and its lining. "If you rumple the one," says he, "you rumple the other." This is more particularly the case in patients labouring under nervous diseases, for then the body sympathises with, and is more directly acted upon by the operations of the mind. So rapidly and so powerfully does this influence manifest itself upon the functions of the secreting organs, that children imprudently applied to the breasts of their mothers while in a state of agitation* and alarm, are apt to be thrown into convulsions, owing to the change effected in the secretion of the milk.

Fear paralyses the muscular powers, diminishing the afflux of arterial blood, and causing it to recede to the central vessels, thereby disturbing the balance between the internal organs and the surface of the body, which becomes cold and pale.

Sorrow depresses the nervous energy, and impedes the function of secretion, giving rise to defective digestion and imperfect assimilation.

The influence of grief is directly opposed to the conditions essential to a perfect oxygenation of the blood. This is first observable in the diminished energies of the mental faculties, and subsequently in the progressive and fatal diminution of the vital powers.†

Many of the more agreeable mental feelings, as hope, confidence, and joy, brace the muscles, stimulate their vigour, and enable them to perform their functions with alacrity. Joy displays its influence chiefly on the motions of the heart, the consequence of whose increased action is an augmentation of the force and velocity of the blood—fuller and more powerful inspiration of air, and an increase of the temperature and strength of the body. Nevertheless, joy in excess may do harm ; it may excite the vital energies beyond their healthy balance, to an extent from which the natural powers will be unable to rally them, and in this way produce madness or death. Confidence, on the same principle, acts as a tonic to the whole frame, and when it is directed by the patient to the medical attendant, will give virtue and efficacy to the remedies he prescribes ; while distrust in the abilities of a medical adviser will often defeat the tendency of his most judicious and seasonable prescriptions.

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* See note, p. 57.

† It has been remarked that the blood of those who die of grief, continues liquid, instead of coagulating as in ordinary cases.

The influence of imagination is no less perceptible upon the corporeal functions, and is often exercised with baneful or with beneficial effects according to the nature of the agency of the exciting cause. A conscientious and experienced physician, whose opinion a patient is accustomed to regard with reverence, will be exceedingly cautious to inspire a proper confidence in the remedies he recommends, and to avoid all expressions calculated to excite unnecessary alarm, while at the same time he will offer no deceitful assurances of recovery, or encouragement to slavish credulity, or ignorant superstition. Principle and example must not be sacrificed to meet the folly or limited intelligence of patients.

Emotions are to the mind, what varieties of food and drink are to the body. They stimulate, tranquillize, depress, or ruffle it; and, what is of more immediate moment, they affect the body in like manner:

> "Omnia corporis mala ab anima procedunt."

Although we cannot agree with PLATO in thinking that all corporeal affections proceed from the soul, yet we have but to look in the face of an enraged man, to be convinced of the influence of nervous and vascular emotions on all the other systems of the body. It is in this way that the animal magnetism of MESMER, the metallic tractors of PERKINS, and the universal pill of MORISON, though mummeries and impositions in themselves, have at times accidentally produced some of the extraordinary sensations and effects described by those upon whose minds the impositions have been practised. In this way, too, amulets, incantations, and charms, in the days of ignorance and superstition, produced many of the now almost incredible effects recorded of them. They have lost their power by the diffusion of knowledge, but the principle is still in action, though under different forms. The phenomena thus exhibited are so self-evident, that few will be fool-hardy enough to deny their influence in modifying the action of medicine and the ravages of disease. How then, must honest intelligence pity and despise the willing victims of prejudice and ignorance, who continue to patronise irresponsible empirics, whose nostrums acknowledge no qualification either in regard to the nature or progress of disease—the age, sex, or temperament of the patient, or the condition or constitution of the mind.

Even a proper knowledge of the power and properties of a medicine, and a due regard to all the modifying circumstances enumerated, does not justify its indiscriminate exhibition; for its most salutary effects may be injurious, owing to the stage of the malady for which it has been prescribed. Thus, tonics, stimulants, and astringents, so useful in dysentery, when the inflammatory symptoms have been subdued, would be extremely hazardous during their presence. A powerful cathartic might prove fatal, in cases where, from accumulation in the bowels, its exhibition would appear to be indicated, provided inflammation, ulceration, or sanguineous congestion from any cause, happened to be present.

The proper time for administering medicine is as essential to its beneficial effects, as the proper dose, and the proper kind. Many salutary processes occurring in the progress of a disease, are interrupted by inattention to this circumstance, and metastasis, and other evils induced, which otherwise might have been avoided.

OF CLEANLINESS AND BATHING.

In my observations upon perspiration, I have anticipated in some degree what might be said here upon the subject of cleanliness and bathing; but I deem it necessary to explain farther the principles upon which these two important auxiliaries of health and comfort are recommended, for I am persuaded that a great proportion of ordinary complaints originate in a want of cleanliness, and improper management of the skin.

There is an exudation peculiar to the skin, besides the perspiration, of an unctuous nature, which keeps it soft, and gives it a glossy appearance. In some cases, the pores through which this sebaceous fluid is distilled, become obstructed, when the retained matter, from its acridity, inflames the surrounding tissue, forming pimples and other cutaneous affections; and even when this excretion is thrown out under the most favourable circumstances, if it be allowed to accumulate on the surface, it will not only interfere with the functions of the skin, but a portion of it, on being re-absorbed, will again enter into the circulation, from which it was before expelled as unfit for the purposes of life and health. A disagreeable odour will also be communicated to those within the circumference of its influence. It is observed that those who are most sensible of this effluvium, generally have themselves perfumed with the concentrated aroma of some animal or plant, such as musk, or lavender, whose smell they seem to think will be more acceptable than their own.

By changing the under dress frequently, many of the impurities which accumulate on the skin may be removed; but without frequent washing they will remain to clog up, and debilitate the minute vessels, by which the noxious excretion is expelled.

Frequent ablution by means of soap and water, followed by friction with a coarse dry towel, is by far the best cosmetic, and these will be followed by much more agreeable and beneficial effects than Cologne water, skin powder, or aromatics. Cleanliness preserves the skin soft by freeing and invigorating its secreting apparatus, and favouring its natural functions. Many bowel, and other complaints, arising from checked perspiration, are obviated by proper attention to the indications and healthy condition of the skin.

From a want of proper attention, the skin on the feet sometimes takes on an unhealthy action, and pours out an inordinate quantity of acrid perspiration, which causes it to become tender, and to appear as if parboiled. In such cases, the use of soap and water morning and evening, at the temperature of the atmosphere, will be of essential service. Sponging the feet with vinegar, or with Goulard's extract diluted, and changing the stockings often, particularly after much exercise, will also contribute towards removing this discomfort, which is prejudicial to health generally, and particularly so to digestion, and the functions of the organs of sense.

THE WARM BATH. The use of the warm bath is not by any means followed by the debilitating effects ascribed to it, and when not too warm, or prolonged beyond twenty minutes, may be used daily with safety and advantage. The Greeks had recourse to the warm bath after violent exercises, and found that it removed fatigue, and elevated the spirits.* It is decidedly the most potent and agreeable external means which we can have recourse to for the relief of biliary derangements, and the innumerable morbid and anomalous feelings connected with that class of complaints.

The warm bath has a peculiarly soothing effect in cases of mental irritation, as well as bodily distress. It begets a feeling of comfort; it drowns inquietude; promotes sleep; and in rheumatic colic, spasms, catarrhs, and several chronic and other affections, arising from the impaired functions of the skin, it has been found of singular benefit. The temperature should vary according to circumstances, from 90° Fahrenheit, to 98°. Any temperature below or above these, should be directed by a physician.

The fittest time for using the warm bath for common dietetic purposes is, when the stomach is empty, between the hours of breakfast and dinner. No additional clothing should be used after taking a warm bath. It is an erroneous idea, that the body is more susceptible of cold, coming out of a warm bath, than before going into one.

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* Marcund. de l'Usages des Baines, p. 23.

Frictions with flannel, or a brush, in imitation of the oriental custom of shampooing, is much recommended after using the warm bath. The region of the liver and the whole of the spine ought to be well rubbed, in order to stimulate the various absorbent, secretory, and circulating vessels; this will be found to reward the trouble with unusual benefit.

The tepid bath. The temperature of the tepid bath ranges from 86° to 90° Fahrenheit; but water at about 88° is the general standard of this form of bath. It is of considerable use in relaxing the skin, and promoting insensible perspiration; and is recommended chiefly in cases where the skin is arid, and transpiration deficient, or in chronic cutaneous diseases, to cleanse the pores of the skin from the vitiated secretions which are constantly obstructing them.

The cold bath. Cold bathing may be advantageously used within doors, by those who are prevented by any cause from bathing without; but open sea-bathing is beyond all others the most salutary, and to such as reside in large towns, or who are accustomed to the enervating employment and impure air peculiar to such places, it is of incalculable value. It stimulates the capillary vessels of the skin, and promotes an afflux of invigorating fluids to the muscles, which are thereby braced, and rendered firmer and more elastic. It is owing to this reaction, that cold bathing proves salubrious, but it should not be forgotten, that it is owing to the vigour of constitution by which reaction is established, that it is so, for when cold bathing is injudiciously applied, and that from debility or disease, the languid powers of life are unable to oppose the chilling effects of the cold shock, no genial glow of reaction follows; on the contrary, sickness, headache, shivering, drowsiness, and aversion to food, are the *sequelae*, and if persevered in, will destroy, rather than recruit the feeble remains of health.

Cold bathing is not only conducive to the promotion and preservation of health, but under proper restrictions, is a very powerful therapeutic agent, in cases where the circulation is sluggish and weak, accompanied by profuse perspiration and fatigue on very moderate exercise, and also in nervous disorders and tremors in the limbs, provided these symptoms are unconnected with visceral disease.

June and September should be selected in preference to the other months in the year, for sea-bathing, the efficacy of which will be promoted, by allowing an interval to supervene between the two courses.

Delicate, and young people, should not begin bathing by plunging at once into the sea at its common temperature. It will be much better for them to commence with the tepid bath first, at a temperature of 90° Fahrenheit, lowering it five degrees each time, and terminating at sixty-five. This preparatory course will prevent effects, which in many instances lead to the suspension of cold bathing, by convalescents, invalids, and otherwise delicate persons, likely to be much benefited by its use.

The following rules are of general application, and may be found useful:—

Never bathe with a full stomach; never bathe in the open sea when fatigued, or chilled, nor when there is a determination of blood to the head, or any disease of the chest or abdomen present, nor the same day after taking medicine.

The robust and healthy may bathe every morning, but it will be improper for delicate persons to bathe oftener than every second day; about two hours before dinner, will be the most suitable time for the latter class.

A little exercise, to the extent of producing a moderate glow of heat throughout the body, ought always to precede bathing. It should not however be carried the length of fatigue, for then the cutaneous and other vessels, being excited beyond the equipoise of health, are predisposed to torpor and sudden collapse, rendering the operation of sudden transitions extremely dangerous, by throwing the blood in inordinate quantity inward upon the viscera, the minute capillaries of which, being already in an exhausted or weakened condition, are inadequate to the increased demand upon their function; whereas if the exercise is not fatiguingly severe, the constitution will resist a considerable shock, as is evinced by men and animals while heated, but not fatigued, plunging into cold water with impunity, and even with benefit. In the one case, the vital powers are inadequate to restore the balance of the circulation, and the lungs or some internal organ must suffer; in the other case, a reaction soon follows, producing a temporary oscillation of the vital fluids, exhilaration of spirits, and renovated energy. Here we have a true picture of the effects perpetually produced by sudden atmospherical transitions in this most changeable climate.

It is a vulgar, unnatural, and dangerous practice in bathers, to plunge head foremost into the water. From one to three minutes' continuance in the sea is sufficient to fulfil all the indications of its use. If chilliness, languor, and headache, succeed immersion in the sea, it should not be continued. After coming out of the water, the body should be dried, and the clothes resumed as quickly as possible.

The shower bath. The shock produced by the cold shower bath, is more transient than that of the common cold or open sea bath, and is therefore better adapted to individuals whose power of reaction is feeble. It is a simple and exceedingly serviceable remedy against an afflux of blood to the head, catarrhs, and headaches. It may be used so as to affect the head only, by protecting the shoulders and the rest of the body, by means of an oiled silk covering, or a common waterproof cloak. The sudden effects of the shock may also be modified at pleasure, by the addition of warm water to that in the bath.

THE FOOT BATH. Cold feet are a sure indication of a weak circulation in the extreme vessels, and a corresponding defection in the vigour of health, while warm perspirable feet indicate its opposite. Cleanliness will do much to promote this last condition. Either warm, tepid, or cold water, may be used for the purpose with equal benefit, according to the age, the habits, and the conveniency of the party using them.

Washing the feet in cold water, and rubbing them dry before going to bed, will be a great means of removing the disposition to coldness of the feet.

OF BATHING GENERALLY. The good effect of cold bathing in childhood has been much questioned. GALEN was of opinion, that it stunted the growth, and favoured visceral obstructions, and the formation of diseases. He opposed himself to its use, at all periods of life below manhood, and even then, he recommended considerable caution, before resorting to it. Others again, maintain that it only checks redundant growth, and when gradually introduced by tepid bathing, may be used with benefit at all ages. I should think that in early life, the alternate use of warm and cold bathing, as recommended by Celsus and others, and referred to at page 64, will be attended with better effects, particularly in this inconstant climate, than the exclusive use of either the warm or cold bath, excepting in cases of irritable, rickety, and otherwise delicate children, when the warm and tepid bath will be found much more beneficial.

In manhood and middle age, cold bathing in every form will be found a most salutary mean of promoting health. An occasional warm bath will nevertheless be useful, to remove impurities from the skin, and preserve it soft and perspirable.

OF CLOTHING.

It would be of much importance to the interests of humanity, to have the uses and abuses of clothing explained at greater length than I can attempt to do in the limits I have allowed myself. Indeed it is merely from an impression, that custom disclaims a due regard to health and comfort in this particular, that I have been induced to consider the subject, and to throw out a few practical hints, which, as they are applicable to all, may be regarded by a few.

The great object of clothing should always be borne in mind while choosing the fabric, and directing the fashion of our dress; viz. to defend and equalize the temperature of the body, and repel dangerous cutaneous absorption, in marshy, moist, and unhealthy districts, thereby enabling us to accommodate ourselves to the vicissitudes of the atmosphere in all seasons and climates, and to promote and preserve our health under circumstances otherwise unfavourable.

Ease and comfort in clothing, however much it may be opposed to fashion, are essential to the free motions and health of the body. To be well dressed, is not to be remarkable in dress, but plain and clean. The minds of those who are incapable of directing their attention to serious thought, and important objects, will be the most likely to have themselves occupied with the frivolities of fashion, and the superfluities of dress, and to be the greatest sufferers from the inflictions of their own extravagance and love of admiration.

Our clothing should never be so cumbrous as to fatigue us, nor so light as to be inadequate to our defence. In the first case, it will beget a habit of delicacy, and relax and enfeeble the body; and in the second, it will render us obnoxious to chills, inflammations, and a host of serious, and not unfrequently, fatal disorders.

All delicate people should wear an underdress of flannel, and the most robust, if much exposed to the weather, will find it their interest to follow the example.

There never has been an invention in the article of dress, more beneficial to health than the use of flannel next the skin. It has prevented many diseases, and saved many lives; and if better understood and more generally adopted, catarrhs, chronic coughs, rheumatism, and consumption, would have fewer victims. In this variable climate, the use of flannel is indispensable to health. It supplies the great desideratum of equalizing the temperature of the body, by retaining warmth, and repelling cold in cold weather, and relieving us from the oppression of warmth by its nonconducting properties, and by absorbing the moist excretions which are thrown out by the skin in warm weather. Flannel is therefore as necessary in summer as in winter. It is a dangerous fallacy to think otherwise. In fact, those who value life and health, should never leave it off even for a day, during the whole year. Those who do so, under the mistaken impression that its use is not necessary in warm weather, are sure of getting chilled, and of contracting what is termed, "a bad cold," which in almost every instance is followed by dangerous lesions, and in many by certain death.

Next to flannel, and what will perhaps be more agreeable to some, will be to wear a wash leather waistcoat over a thick calico shirt. Calico is preferable to linen for personal covering, and for beds. It should be closer and thicker in the texture for winter, than for summer wear.

Every person should wear woollen stockings, and thick-soled shoes, during wet and cold seasons. SIR ANTHONY CARLISLE is of opinion, that scrofula may in all cases be prevented by undeviating attention to clothing, local residence, domestic accommodation, cleanliness, and diet. SYDENHAM thought that throwing aside our winter garments too early in spring, and exposing our bodies, when overheated, to sudden cold, destroyed more lives than famine, pestilence, and the sword;* and HIPPOCRATES, although he recommends cooler diet as the spring grows warm, never advises that we should lay aside any of our winter garments at that time, whereas in the autumn he expressly enjoins the use of thick clothing.*

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* De feb. intercurrent. sect. 4.

The clothing of the young and the aged ought to be comfortably warm. In the prime of life and the vigour of health it will not be required to attend so particularly to the warmth of the body; but care should be taken to adapt the clothing, in all periods of life, to the susceptibilities of generating heat, and to the seasons and changes of the weather. For, when disease is induced by imprudent exposure to cold, its severity is in general proportioned to the strength of the vital powers. It is from this cause that the disorders of middle life are so often rapid in their progress, and fatal in their termination.

It is surprising how little the appeals of reason and experience are heeded in such matters. It is no uncommon thing to hear such as confine themselves in the artificial atmosphere of heated rooms, twenty-three out of the twenty-four hours, grumbling against the cold, and complaining against the chilblains, tooth-aches, and rheumatisms, the sequence of only one hour's exposure to the open air; as if the order of the universe should be inverted in accordance with their ignorance and caprice. Nature in such cases, while endeavouring to accommodate the system to the circumstances of the individual, reduces the innate powers of generating heat; and consequently any sudden transition is more liable to be followed by evil consequences than if the temperature had been uniformly equable. Such transitions are in all cases highly injurious to health, by inducing chills, which, as has already been stated, are the prolific parents of many anomalous and serious disorders. It is not improbable that most of the ailments to which the inhabitants of this country are liable, if they do not directly originate in, are at least considerably influenced by aerial transitions, and therefore we cannot be too much on our guard against this source of danger.

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* Sect. 3, aphor. 9, p. 12, 47.

It is not on the field labourer, the sailor, or such as are much exposed to the weather, that the malignant influence of its sudden changes principally falls. It is on the pampered children of luxury, and on the sedentary artist and blanched mechanic, who, from ignorance, folly, or necessity, supplant the natural laws of health by artificial extremes.

A ready and frequent cause of "catching a cold," is going into a heated apartment and taking warm and stimulating drinks, after being in a cold air, or going suddenly from hot or crowded rooms into a cold atmosphere. The most likely way to avoid such an effect will be to keep away in the first instance, for a time, from the fire, and from warm and strong drinks, and in the second, to allow the body to cool gradually, and to apply a soft open worked muffler around the throat and mouth. This will imbibe a portion of heat from the expired breath, and communicate it to the current of fresh air passing into the lungs, and to a certain extent modify its temperature.

When "a cold" has been contracted, to keep the body warm by walking or other exercise; to avoid rooms with fires in them; to live temperately; and to drink plenty of cold water, will be the most simple, and perhaps the most effectual means of removing it.

Too little attention has been paid by scientific men to the construction of shoes. The amount of misery occasioned by ill-adapted shoes and boots is incalculable. Sometimes the toes are so compressed that the nails are found to grow down into the flesh, notwithstanding which, and that nostrums for bunions and cures for corns are advertised in every periodical, fashion continues to subscribe to the evil, and the shoemaker continues to pinch and cripple his fashionable employers.

Shoes should be comfortably long and sufficiently broad in the sole, particularly across the toes; they should be soft and roomy in the uppers, moderately tight over the instep, and low in the heels.

OF LIQUID FOOD.

Pure water as a diet drink is superior to every other, and is suited to all ages, temperaments, and persons. It is the best solvent and diluent of our solid food, it supports and assists the vigour of the digestive organs, it furnishes a suitable and natural supply to the secreting vessels, and preserves the general elasticity and humidity of the body.

Water enters into the formation of every tissue of the human fabric, either in combination or mixture; the fluids of which being exposed to continual expenditure by transpiration, internal exhalation, and secretion, the demand for drink becomes even more urgent than for food, and is no less important to the purposes of life and health. Fluid food, however, in excess, encourages the growth of unhealthy flesh, favours flatulence, and weakens the body.

Much of the thirst which is made the excuse for drink, at, and after dinner, arises from habit,—from improper food, or from excess in eating. The necessity for more drink than is required to moisten and mix the solid food of our principal meal, is a suspicious symptom that something is wrong in the moral constitution. It is a good rule to drink only with solid food, and seldom on an empty stomach, or after long fasting, excepting under the pressure of great thirst, and also to drink little and often at meals, rather than great draughts at once.

Liquids which hold nutritive matter in solution, such as animal broths, jellies, &c., when received into the stomach, undergo certain changes according to the nature of their composition. They are either coagulated by the gastric juice, or their watery parts are absorbed, and the solid matter only left for chymification and assimilation.

Although glutinous liquid food may contain the elements of nutrition in the highest state of concentration, it is digested with great difficulty. It not only relaxes and distends the stomach, but it opposes its tenacity to the absorption of its more fluid parts, and therefore the addition of isinglass and other viscous substances to the broths and slops of invalids, instead of being salutary, as is generally supposed, is the very reverse. Oil is the only nutrimental fluid which appears to be transformed into chyme; but in order to effect this, the stomach must be educated to the use of such substances, or be in a state of high energy, otherwise they will undergo chemical decomposition, and become rancid; and as they cannot be readily absorbed, they will act as an aperient in their passage through the alimentary canal.

Milk is an important article of diet, and is made to form a part in various medicinal and dietetic preparations. It holds a medium rank between the animal and vegetable kinds of food, possessing a sufficiency of the former to render it perfectly nutritious, and of the latter, to preserve it from a tendency to putrescent fermentation.

Milk is best, taken directly after coming from the animal, before it has been exposed for any length of time to the action of the air, which changes and deteriorates its quality. This effect may to a certain extent be obviated by keeping the vessel containing it, either in, or over, another vessel containing boiling water. When milk has been allowed to stand for some time exposed to the air, it should be warmed on the fire, and a little sugar added to it before being used, particularly by invalids, and such as take little exercise, or whose digestion is impaired; for although milk is so well adapted to the young, it is not by any means of easy digestion to the adult and aged, unless custom has habituated the stomach to its use. It also disagrees very much with the plethoric, and with tipplers, and such as are addicted to strong drinks.

When new milk is found too heavy for a weak stomach, it is much more wholesome to dilute it with lukewarm water, than to allow it to stand for a time, and then skim it. Under such circumstances a little soda water or lime water may be advantageously mixed with it.

No kind of fermented liquors ought to be drunk after taking milk; nor should milk be used after eating fish.

A well-regulated milk diet is exceedingly beneficial for convalescents, and when conjoined with exercise will be found one of the best remedies for rheumatism, gout, cutaneous blotches, and many chronic anomalous diseases.

Wine. I am of opinion that the use of wine, as well as of all other stimulating drinks, is not only unnecessary, but hurtful in every case where the digestion of wholesome food is equal to the requisite supplies of bodily waste and mental exhaustion. But as a medicine, and in declining years, or in circumstances where from sedentary habits, protracted and fatiguing mental or corporeal labour without healthy exercise, the tone of the digestive organs, and energy of the animal functions are impaired, the moderate and judicious use of wine will be found decidedly beneficial.

I consider wine a very pernicious agent in childhood and youth. Parents who are anxious for the health of their children, should never give them wine, unless under medical advice, for there are very few cases indeed in which wine can be given under the age of puberty without deranging the functions of the stomach, and impairing the secretions generally.*

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* Dr Beddoes tells us of an ingenious surgeon who gave to two of his children, for a week, alternately, after dinner, to the one, a full glass of sherry, and to the other, an orange. In the former, the pulse became quick—the heat increased—the urine became high-coloured, and the stools deficient in

Under the influence of wine, the sensation of the power of life is mistaken for the power itself: for there is no actual increase of ability following its use, by which permanent labour could be supported. The mere actions of the body are stimulated without supplying the expenditure of the principles by which these actions are produced, hence the languor and debility which succeed even a slight excess, and the loss of vigour, the feverishness, and chronic complaints, consequent upon immoderate indulgence. The rationale is obvious. The action of the vital functions being unduly increased, there is a consequent consumption of life proportionate to the force and duration of the exciting cause. This explains in some degree why wine is so pernicious to the young, and yet allowable to the aged. In the former, the principles and motions of life being sufficiently active, are apt, under the operation of even slight causes, to run into excess, and terminate in disease, while the aged, on the contrary, from defective heat and incapacity for suitable exercise, require a grateful and in-

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the usual quantity of bile, while the other had every appearance that indicated high health. The same effects followed when the experiment was reversed. The fact which this experiment demonstrates cannot be too strongly enforced, seeing that the practice which it condemns is of extensive adoption, and obtains even where circumstances are favourable to the very best advice. At the table of a distinguished nobleman, I observed, upon a recent occasion, that it was the custom to give his daughter (a mere child) a glass of wine after a dinner of flesh-meat.

vigorating stimulus to warm and rouse the flagging powers to greater and more effective activity.

The entire discontinuance of wine to such as have been early accustomed to its use will be injurious, and there are many constitutions so inherently defective in energy as to require a daily allowance of wine. There are circumstances also in which even the most robust may derive benefit from its occasional use. Unusual and continued exertion in the open air, the influence of the depressing passions, and protracted watchfulness, render the temporary use of wine not only innocuous, but beneficial. In such cases it should be considered as a medicine, and used under proper restrictions. I have known as much as two pints of wine used by a patient in one day with decided benefit, while recovering from a severe attack of fever. When restlessness and general irritability under the use of wine are soothed,—the pulse not accelerated, but rather softened and subdued, and the skin rendered more moist, or at least not increased in aridity and heat, it is at all times and in all circumstances a sure criterion of its being beneficial.

When wine disagrees with the stomach, it is first observable on the breath, which acquires its smell. Heartburn, acidity, and derangement of the bowels supervene—the temper becomes peevish and irascible, and indigestion in all its protean symptoms, soon follows.

The least injurious and most grateful wine is sherry, which ought to be chosen of a light thin body, and of a pale yellow colour. Such wine will not obstruct the bowels, and will act as a salutary diuretic.

Thick dark astringent wines are not by any means commendable. HIPPOCRATES thought that diluted wine is best for the head, chest, and renal organs, but that wine when undiluted agrees best with the stomach.

ARDENT SPIRITS. I am inclined with HALLER, to rank ardent spirits among the poisons, rather than among the useful liquids, the evils resulting from their dietetical abuse being so much more than the benefits accruing from either their medical use or their temperate indulgence.

It is vain to contend against the obvious fact, that the functions of the human system can be, and are, vigorously executed without the aid of spirits, and therefore, their effects can only be morbid excitement, the consequences of which, although perhaps not felt at the moment, are sure to operate sooner or later with destructive virulence.

It is well known that fowls, hogs, and other animals which are fed about breweries, on the grains left after distillation and fermentation, acquire large diseased livers and ulcerated bowels, in the same manner as hard drinkers do. The constant irritation in the line of the digestive organs keeps up a determination of blood to these viscera, ending in debility of the capillaries, congestion, chronic inflammation, obstruction, and ulceration.

Habitual drunkenness may be ranked among the causes which modify disease and the action of medicines, and which require to be known and attended to in prescribing for this class of patients. There is a manner—an aspect in the inebriate, even when sober, which stamps him unequivocally. He has lost the ease, steadiness, and elasticity of health in his motions; his eyes and eyelids have become red; his face bloated, sallow, and blotched; his nose red, and his breath offensive; his muscles and skin are flaccid; his bowels and renal organs disordered, and his hands tremulous. If no particular organic disease supervene to cut him off suddenly, he wastes in flesh, and mopes in spirit; memory and judgment fail, the mind becomes irresolute, timid, and craven; the moral principles so intimately blended with the harmony of the physical constitution, become insensible to the impulses of both instinct and virtue, and a sottish stupidity, the forerunner of palsy, apoplexy, dropsy, or mania, winds up the drama of his pitiable and profitless life.

LIQUEURS, CORDIALS, and BITTER TINCTURES are equally, if not more pernicious than undisguised spirits. Every ingredient infused in, or mixed with spirits (water excepted) renders them more insidious and dangerous. Many persons have been led insensibly into habitual tippling by the frequent use of CORDIALS, impregnated with BITTERS, NARCOTICS, AROMATICS, and other noxious substances. The habit is often established before the judgment discovers that the partial sensation of increased vitality which these drinks afford is but a deceptive lure to a decrease of the constitutional powers.

MALT LIQUORS. There are many who class themselves amongst the sober and temperate, and who would shrink from intoxication with the abhorrence of a Rechabite, who yet commit sad depredations on their health, by what they conceive to be moderate indulgence in ale or other malt liquor,—a habit which is sure to embitter the ulterior periods of existence. Obesity, giddiness, hebetude, apoplexy, and other diseases of the head are known to result from this practice; but it is not generally known that these liquors have a direct tendency to produce water in the chest, and to predispose to those numerous organic affections of the heart itself, which of late years have become so prevalent.

Malt liquors assuredly give a greater degree of fulness to the blood-vessels than any other species of drink, while in common with the latter they paralyse the absorbents, and thereby render torpid many of the salutary secretions. The heart is thus called upon for unusual exertions, which eventually injure its functions or structure; while the equlibrium between exhalation and absorption on the serous membrane of the chest is deranged, and dropsical effusions into the bag which encloses the heart, (*pericardium*) and those membranes which evelope the lungs (*pleuræ*) uniformly ensues.

The bibber of malt liquors has little reason to exult over the bibber of ardent spirits. If he escape effusions of water into the cavity of the belly, he runs the greater risk of water in the chest. If he escape an affection of the liver, he becomes predisposed to disease of the heart. If he experience not emaciation and tremors, he too often becomes overloaded with fat, and dies apoplectic. If he be not so liable to maniacal paroxysms of fury from the fire of ardent spirits, his brain becomes sodden and his senses obtuse.

It will be of little use pourtraying farther the mental, corporeal, and moral effects which flow from excess in inebriating liquors; the truthful lessons are forced upon us in every street and lane to which we turn. In one place, former affluence is clothed in the rags of squalid poverty; in another, guilt is consigned to the merciless hand of justice and punishment. In short, we daily witness every tie with which nature, religion, or affection binds us in our social relations, severed, and health and happiness sacrificed, without effecting the salutary object of rational reform. I would be understood here, as speaking only of the inordinate use of intoxicating liquors, not as entirely prohibiting them in cases where they are likely to be beneficial.

Small Beer is less heating, and not so stimulating as other malt liquors, and when used soft and mild, is a good drink, particularly for labourers. STRONG BEER is more nourishing than either small beer or wine, and more laxative. It is moreover a wholesome diet drink, but is intoxicating, and therefore requires restrictions in its use.

PORTER, when properly made, is preferable to either small or strong beer, but its use requires to be conjoined with more severe exercise and a free discharge from the skin, otherwise it will induce dangerous affections.

ALE is the strongest extract of malt. It is heavier and more difficult of digestion than beer and porter, and therefore less proper for weak stomachs. In small quantities, however, it may, like other malt liquors, be used with impunity by persons who lead a busy active life, provided their use be not contraindicated by disease or peculiarity of constitution.

TEA. I am favourable to the use of tea when good, well prepared, and taken in moderation, and not as a substitute for more nutritious aliment.

Tea with milk and sugar is a harmless and agreeable beverage, which has done much for the cause of temperance; but the nervous and dyspeptic, whose irritability would be increased, and their stomachs weakened by tepid diluents, should use tea very sparingly, and never late in the evening, or at bed-time. The injurious effects attributed to the use of tea, may be in a great measure prevented by taking solid food along with it or immediately before it. Good bohea tea seems best adapted to the purposes of health. Green tea operates injuriously on the nervous system; it prevents sleep, and when taken in excess will produce a feeling of anxiety, with nausea, nervous debility, intermitting and weak pulse, and oppression of the chest.

Coffee taken in moderation is a wholesome and exhilarating beverage. It should always be mixed with a large proportion of fresh or warm milk, for when drunk very strong it is heating and stimulating, creating thirst and watchfulness. If taken immediately after a meal, it is not found to create that disturbance in its digestion, which has been noticed as the effect of tea. On the contrary, it accelerates the operations of the stomach, and will frequently enable the dyspeptic to digest substances, such as fat and oily aliment, which would otherwise create much uneasiness.

By an abusive indulgence in the use of this drink, it impedes digestion, debilitates the nervous energy, and is said to predispose to paralysis.

Chocolate is composed of the cocoa-nut reduced into a paste with milk, sugar, eggs, and aromatics, the most common of which is the *vanilla*, a substance by no means congenial to delicate stomachs or weak nerves. Chocolate is a very nourishing but heavy and sickening beverage. It is difficult of assimilation, and altogether objectionable as a common article of diet.

An infusion of GINGER with milk and sugar is used by some as a substitute for tea, and to persons of weak digestion and of a leucophlegmatic or gouty habit, it may be more serviceable than either tea or coffee, and equally agreeable.

SAGE and BALM are likewise used as substitutes for tea, and in cases of indigestion and nervous debility, are found to answer much better than either. JOHN HUSSEY of Sydenham in Kent, who lived to the age of 116, is said to have taken nothing for breakfast but balm tea, sweetened with honey, for fifty years prior to his death.

The habit of drinking liquids of any kind very hot, is highly pernicious; it spoils the teeth, weakens the stomach, injures the head and eyes, and is attended with many other mischievous effects. It is recorded of the Emperors Augustus and Claudius, that having enervated their health by a warm regimen, it was restored by drinking their wine cold.*

When liquids are taken merely with a view to quench thirst, they ought to be drank in mouthfuls at a time; in this way a much smaller quantity will suffice.

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* Barry on the wines of the ancients.

OF SOLID FOOD.

Social refinement has engendered many artificial wants, the gratification of which adds much to the enjoyments of life; but as there are boundaries beyond which plenary indulgence reacts with injurious consequences, care should be taken to discriminate between the mere wants and impulses of nature, and our own sensuality; between the appeals of our own new appetites and the cravings of instinct; for, however paradoxical it may appear, it is no less true that nine-tenths of the chronic diseases—many of the infirmities of old age, and the shortness of life in general, might be traced to repletion. In fact, there are few, if any, who do not eat more than double the quantity of food required, and often four or five times more than they ought to do.*

The young and robust may, and often do take liberties in both eating and drinking with apparent impunity; but the delicate and diseased, and such as are advanced in years, must adopt a well-advised, wholesome, and systematic mode of living. Age, sex, constitution, climate, and customs, require to be considered in determining this mode.

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* "It has been proved by experiments that the dyspeptic invalid will derive more nutriment and strength from four ounces of gruel every six hours, than from half a pound of animal food, and a pint of wine administered at the same intervals of time."

All kinds of solid food are drawn from the animal or vegetable kingdoms. Animal food, being composed of parts which have already undergone the process of digestion, requires only solution and assimilation; but vegetable food must be converted by the action of our viscera into animal substance, and therefore is less stimulating, less nourishing, and more tedious to digest.

Animal food is better adapted to cold northern climates, where the vigour of the system is apt to be weakened by the extremes of temperature, than to warm and temperate climates, where it is known to keep up a feverish excitement, and to induce obesity, chronic diseases, and premature decay of the functions and powers of life. Animal food has likewise a marked effect upon the mind, exciting ferocity of disposition, and those other passions which characterise carnivorous animals. Vegetable food, on the contrary, has no direct tendency to produce constitutional disorders; it may occasionally derange the stomach and bowels; but rarely if ever extends such derangement to the general system, while, under its use the character and feelings will acquire a gentleness and placidity, and the mind an elevation and clearness, which seldom obtains in cases where the food is exclusively animal.

A suitable admixture of these two substances, so as to proportion the quantity of each to the bodily health, occupation, and other circumstances peculiar to individual cases, is a matter of much importance, for although those who live chiefly on flesh meat can endure personal exertion and great labour better than such as live exclusively on vegetables, yet the studious and inactive will find the latter preferable. A combination of both, under ordinary circumstances, is found to be best suited to the purposes of health; such, however, as labour under organic diseases, will do well to avoid the stimulus of animal food which tends to increase them; while the cooling and bland nature of a vegetable diet will have a contrary effect; but in nervous and bilious complaints depending upon debility and functional derangement only, a well-ordered diet chiefly animal, will be the most advisable.

The distance between the meals is a matter of much importance to be attended to, for no two stages of the process of digestion go on well at the same time; and therefore frequent eating should be avoided; the distance nevertheless between the times of eating ought not to be so long as to admit of unusual craving of the stomach, and debility; or so short as to produce the greater evil of extreme repletion.

Breakfast may be taken one, two, or three hours after getting up in the morning, according to the season, the hour of rising, and the habit of the party. Four hours after taking breakfast, a little soup with a biscuit, or bit of toast, or some such light article of food, may be taken for a lunch, and six hours from breakfast will be a suitable time to take dinner.

Tea may be taken two or more hours afterwards, and a cup of sago, or other light supper, an hour or so before retiring to rest.

Late dinners succeeding a long fast are exceedingly injurious, for in such circumstances the vigour of the body is exhausted, the pulse quickened, and all the secretions lessened. Another evil pertaining to late dinners is, that it leads to late hours of going to bed, and this again to late hours of rising in the morning, which evils combined have a greater effect upon the health and spirits than is generally believed; more especially upon such as are not very robust and active.

We should always bear in mind that it is not so much by the quantity and quality of the food taken into the stomach that the body is nourished, as by proper adaptation to time and circumstances, and the amount of nutriment elaborated by the processes of digestion and assimilation.

It is impossible to inform any individual of the precise amount of different kinds of food that each should severally imbibe. All that can be done is to state the general facts which have relation to the digestibility and nutritiousness of some of the more common articles of aliment, and what experience has sanctioned regarding their relative proportions and necessary quantity.

Dr Cheyne who gave much attention to this subject, arrived at the conclusion, that for a man of ordinary stature following no laborious employment, eight ounces of flesh-meat, twelve ounces of bread or vegetable food, and from a pint to a pint and a half of liquid daily, is quite sufficient. Persons employed in sedentary professions or intellectual studies, must lessen this quantity. Perhaps the following scale would be found more generally applicable. Four ounces of bread, and eight ounces of tea or coffee, for breakfast. Eight ounces of meat, and four ounces of bread or vegetable food, with from four to eight ounces of wine or other liquid, for dinner. Eight ounces of tea or coffee, with a biscuit in the evening, and six or eight ounces of pultaceous or soft food for supper.

When sufficient exercise is taken, a third more may be added to the above quantity, and when the exercise is very severe, it may be found necessary even to double the allowance.

Animal Flesh is rendered more firm and less digestible by age. Domesticity renders it less dense, a lingering death more delicate, and the keeping of it some time after death, removes in a great measure the rigidity of the muscular fibre, and brings it nearer to a digestible condition.

Very fresh meat, although not so easily digested, is more nutritive than meat long kept.

In choosing animal food, it ought always to be considered whether it be in season or not. PORK, for example, is not in season during the summer, unless very particular attention has been paid to the feeding.

Autumnal BEEF and MUTTON fed on pastoral land, are preferable to stall and winter fed animals. The lean part of fat meat is more easily digested than lean meat.

Ox flesh when properly fed and of mature age, is the most nutritious and easily-digested of all kinds of animal food excepting WEDDER MUTTON.

The flesh of HEIFERS is tender, but it becomes tougher as the animal becomes older.

VEAL and LAMB are less digestible, and afford less nourishment than the redder-fleshed animals. VEAL generally disagrees with weak stomachs. The saccharine principle which it contains, disposes it to fall into the acetous fermentation; besides it is viscid, and possesses a tough fibre of very difficult solution. LAMB is liable to the same objection, if not used with some of the vegetable acids, which, to a certain extent, correct its viscidity or glutinous nature. PORK, from excess of fat, is apt to become rancid, (see page 163) and affect the bowels; it is nevertheless a savoury food, and affords strong nourishment to field labourers, and such as are accustomed to laborious exercise.

Dried Food, such as hung and salted meats, &c., are very difficult of digestion, the preserving material hardens the animal fibre, alters the juices, and impregnates them with an excess of salt beyond what is necessary for the operations of the stomach, and therefore they resist the solvent powers of the gastric juice, requiring longer time, and a greater expenditure of nervous energy, to reduce them to a proper state of softness and liquidity.

Hares, when young and roasted, are nutritive and easily digested, but the flesh of old hares, however cooked, is digested with difficulty.

Rabbits are well adapted to weak stomachs, being but little viscid, and in their general nutritive properties resembling much the flesh of fowls.

The flesh of Fowl is lighter, drier, and easier of digestion than that of quadrupeds. The domestic fowl, when young and of full growth, affords a delicate and wholesome food, and is always best when fed in the open air, instead of being cooped up as they too commonly are. Turkeys are of the same nature, and are delicate, nutritious, and digestible, if the skin be avoided.

Pigeons are of a dry heating nature; they are best when young. Of the tame water fowl, the Goose is the most oppressive and difficult of digestion. The Duck is much more delicate and wholesome. The eatable portions of Wild Water Fowl are fishy tasted, rank, and ill-adapted to weak stomachs. Of Wild Land Fowl, the Black-cock, Partridge, and Quail, are the best. The Pheasant has a good flavour, but is not so nutritive and delicate as either the Ortolan or Woodcock.

Eggs, such as are in common use, and especially those of the domestic fowl, yield a mild demulcent and strengthening aliment, well calculated for delicate persons and students, provided they are not hard boiled or fried, in which case they are difficult of digestion. Raw eggs are highly nutritive, gently laxative, and of service in cases of jaundice and debility of the stomach. It is thought by some, that eggs are improper for persons afflicted with bile, but the idea is erroneous.

Fish has a tendency to putrefaction, and in excess is rather an equivocal kind of food, particularly for the aged. The most unwholesome kinds are, Shell-fish, Mackerel, Herrings, Salmon, and Eels. The most wholesome kinds are, Whitings, Perch, Flounders, Smelts, Skate, Haddocks, Turbot, and Soles. The flakiness and opaque appearance of fish after being cooked, may be considered as indications of its goodness.

Fish should never be eaten without acid, and more particularly shell-fish, which are otherwise exceedingly viscid and indigestible.

The whiting being delicate and tender, is best adapted to weak stomachs, conveying as it does sufficient nourishment, with little stimulus, to the system; the Haddock, though a firmer, is a more delicate kind of fish. The COD affords excellent aliment, but is not so digestible as either of the two last mentioned. SALMON, although perhaps the most nutritious of all the fish tribe, is stimulating, and from the oily matter it contains, is difficult of digestion even with the aid of vinegar as a condiment. The qualities by which the digestibility of fish is to be ascertained, are firmness of texture, whiteness of muscle, and the absence of oiliness and viscidity; according as they are severally distinguished by these qualties, so will they be useful as a general article of diet. Fish is best when boiled; roasting or frying injures its digestibility.

FARINACEOUS, and VEGETABLE food. We cannot open our eyes without witnessing the great changes effected by man's genius and industry. Those vegetables and their roots, upon which man and the domesticated animals subsist, are so completely changed from their natural condition, that scarcely one in common use can be found growing wild. Wheat, rye, barley, oats, &c., are all cultivated from plants, which now acknowledge no resemblance to their offspring. The enormous cabbage and cauliflower derive their origin from the tiny-leaved colewort; the potatoe, from a small and bitter root trodden under foot in the wilds of Chili and Monte Video; the delicious plum, from the sour sloe; and the soft fleshy peach, from the tough coriaceous almond. These are but isolated instances of the great revolution brought about by cultivation, and wherever nature has stopped short, the genius of cookery, by means of her potent alembics, obliterates all that remained of originality.

Wheat is the most perfect and nutritious of all kinds of grain, but its digestibility depends much upon the manner in which it is prepared for use. Few articles of diet are more difficult to digest than new bread. This observation applies to every thing, which, by mastication, forms a glutinous paste, which is not easily pervaded by the gastric juice. "So difficult of digestion is such a paste, that I have known more than one dyspeptic, whose stomach could only digest new bread when it was soaked in melted butter. Here one of the articles most difficult of digestion was more easily digested than the tenacious paste which its presence prevented."* Even bread sufficiently old is oppressive if taken alone and in large quantity, for it still forms a mass not very readily pervaded by the juices of the stomach.

Oats, although not so nutritious as wheat, are more so than Barley or Rye. Rice is a simple, wholesome, and nourishing article of diet; it lies light on the stomach, and is well adapted to the condition of invalids. Sago partakes of all the commendable qualities of rice, but in a lesser degree. Indian Arrow Root furnishes the largest amount of nutriment at the least expense of nervous power, of any of the vegetable productions in use.

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* Philip on Digestion, p. 123, et seq.

Potatoes are bland, wholesome, and nutritious, but not so substantial as the various sorts of grain. The wholesomeness and nutritive qualities of potatoes will depend very much on the manner of cooking them. In preparing potatoes for the table, it is of consequence that they be nearly of one size, and that they be clean, but not pared; after which, they should be steeped in cold water for an hour; they ought then to be put into a closely-covered saucepan or kettle, with fresh water and a little salt, and boiled as expeditiously as possible. No more water should be put into the vessel than will merely cover them, as they themselves produce a considerable quantity of fluid. When the water has been poured off, the vessel containing them should be placed at the side of the fire until the steam be completely driven off, they are thus rendered dry and mealy. Mashing potatoes is an objectionable method of preparing them. The coarser the division our food undergoes in mastication the better. Any food requiring no mastication before being swallowed lies heavy on the stomach and is difficult and slow of digestion. During mastication the saliva is freely mixed with the aliment, forming a mass easily pervaded; but mashed articles, jellies, and pastes, resist admixture with the digestive secretions, and are thereby rendered more oppressive and less digestible.

Carrots are nutritious, but flatulent and difficult of digestion.

Esculent Roots and Pot Herbs, when used with animal food, lessen its tendency to putrefaction. The Onion is a grateful, warm, and nourishing root, as is also the Horse Radish; they agree best with persons of a cold phlegmatic habit, and as condiments they promote digestion. Mushrooms are an exceedingly doubtful article of food at all times, and are often very dangerous.

Fruits in general favour the production of acid in the stomach and bowels, and are apt to ferment, more particularly if used before being perfectly ripe. Of the class of stone fruits; Plums when dried, and Tamarinds are least objectionable. The Apple species is more useful as an article of food than the stone fruits; and the Pear, when thoroughly ripe, is more wholesome than either. Their disposition to fermentation and acidity is in a great measure obviated by baking or boiling.

Figs are wholesome either in their crude or preserved state. Grapes are cooling and antiseptic. Currants, Raspberries, Mulberries, and Gooseberries may be used with the same intention as grapes, but they are much inferior. Strawberries are superior to them all. They are more fragrant, less liable to ferment, and are gently aperient.

OF COOKING.

The processes of cooking should render solid food soft and soluble: if they do not, they may in some instances make it more difficult of digestion. Thus, over-done meats and outside portions, as the crusts and torrified surfaces, are less proper than the more juicy and underdone flesh.

Roasting meat is an excellent method of rendering it more easily digested, without greatly changing its chemical properties. By this process the fibres are corrugated—the albumen coagulated—the fat liquified, and the water evaporated. As the operation proceeds, the tendinous parts become soft and gluey, and the savouriness and flavour increased. It is of importance to observe, that unless meat be kept after it has been killed until the fibres begin to lose their firmness and tension, it will not become tender by roasting.

Broiling is a most valuable mode of dressing animal food. It is found that broiled meat contains more uncoagulated albumen, gelatine, and other uncombined chemical principles than roasted meat. It is also more juicy and sapid, more easily digested and nutritious, for the juices are so slightly altered that they require comparatively little preparation to convert them into good chyle and healthy blood.

Boiling is a useful method of preparing some kinds of animal food, rendering it more soluble and easier of digestion, but less so than that prepared by either of the preceding processes. By boiling, the meat is deprived of much of its nutritive properties. Meat boiled too long or too fast, particularly beef, becomes hard and indigestible. Young meat becomes gelatinous and equally difficult to digest, and hence it is that beef or mutton tea are better adapted for invalids, than the broths of young animals. Boiling is particularly applicable to vegetables. It renders them less flatulent and more easily digested. Meats boiled in hard water are more tender and juicy than when soft water is used, while vegetables, on the contrary, are rendered harder and less digestible when boiled in hard water.

Stewing is similar in its effects to boiling, in depriving the meat of much of its nutritious properties, which are washed out of the fibres by the constant entrance and recess of the water during the process.

Frying is a very objectionable mode of cooking meat. The heat in this process is applied through the medium of boiling oil or fat, which is thus rendered empyreumatic, and therefore improper for the purposes of nutrition, and is extremely offensive to the stomach.

Baking is less objectionable than frying, but it is inferior to any of the other processes enumerated.

OF CONDIMENTS.

Condiments are sometimes useful in ameliorating the taste of various kinds of food; at other times they correct their noxious qualities and accelerate their passage through the bowels, or promote the process of digestion. Condiments are nevertheless seldom or never acted upon by the stomach; they resist the action of digestion, and either traverse the alimentary canal, and are subsequently ejected, or they are taken up without change and are carried into the general system.

Salt is the most common and most beneficial of all the condiments. It stimulates the intestinal secretions, as well as those of the mouth and stomach. It promotes the solution and mixture of our food, corrects ascescency, and determines to the skin, and although not susceptible of nutrimental digestion, it is very necessary to life, for *chlorine*, one of the constituents of salt, and a powerful and energetic elementary principle, is essential to the constitution of healthy gastric juice; and soda, another of its constituents, found abundantly in the blood, and the various secretions, is derived, in all probability, from the same source.

Abstinence from salt is productive of most serious evils to all animated beings, one of the most common of which in the human subject, is the generation of worms ; in Ireland, where, from the bad quality of the food, the lower classes are greatly infested with these vermin, a draught of salt and water is a popular and efficacious remedy.

The ACIDS used as condiments, are the ACETIC ACID, called vinegar, CITRIC ACID, from lemon, and the MALIC ACID, from apples. They aid the digestion of crude vegetable food, and even rich and oily animal substances are more easily digested by being taken along with acids.

Vinegar in excess destroys the tone of the stomach, and impairs the general health, but when used in moderation it is a gentle stimulant, and tends to promote appetite. It is antiseptic and antiscorbutic, and when not adulterated, is perhaps the safest of all the acids.

SUGAR is antiseptic, nutritious, and aperient, but it is apt to ferment in the stomach and bowels, and to create flatulence, heat, and thirst.

PEPPERS and SPICES are useful in cases of relaxed stomachs, by the excitement which they produce. In hot countries they are more required to rouse the flagging appetite, and to enable the body to resist the exhausting influence of the sun, as well as to assist the stomach to digest vegetable diet, which, without their aid, it would not be fully able to accomplish. In mild climates they are not so much required, and in a healthy and vigorous stomach, with easily-digested food, they are worse than useless, by hurrying the process of digestion, and exhausting the tone and excitability of the organs concerned.

East Indian spices are more permanent in their effects, and consequently more injurious than BLACK-PEPPER or CAPSICUM.

GINGER possesses little acrimony, and is an agreeable and wholesome aromatic. CINNAMON is a delicate and good stomachic, but is apt to produce constipation. MUSTARD is antiseptic, favours digestion, and promotes the secretions generally. CHEESE, when putrid, is alkalescent. It is useful as a condiment after a dinner of insipid meats, and to correct the effects of injudicious indulgence in the use of fruits.

As it formed no part of my original design to lay down particular rules for the distinction and treatment of diseases, it will not be matter of surprise that I have been so silent as to the occasions when professional advice and medicines are necessary. If all deviations from health originate, as I have endeavoured to shew, in accident and defective adaptation of modes and means to peculiarity of situation and circumstances, then physic and physicians are but secondary to my present object, their aid being required only to discover and rectify error—to remedy "the accidents of life," and the consequences of ignorance and aberration.

I have briefly considered the varied phenomena which are required to concur in the maintenance of a simply vital existence, and the complicated machinery by which the wonderful transmutation of food into the elements of life is accomplished. I have directed attention not only to the causes of diseases generally, but to those indefinite conditions in which positive disease cannot be detected; but where from over excitement, preternatural hebetude, and misdirected education, disease may be fairly anticipated. In doing this, I have not overlooked the efforts made by nature for her own relief, knowing as I do that much important information may be derived from the study of these spontaneous movements, both in regard to the pathology and therapeia of diseases.

I have not considered man as the mere child of nature—the passive inhabitant of any peculiar region, bounding his wants and wishes by the natural produce of his own locality. I have addressed myself to him as he now is—the creature of civilization—the citizen of the great globe, drawing his support and his gratifications from the productions of every climate and every soil, and I have appealed to *science* and *experience* as the only substitutes for that unerring instinct which originally expressed the wants of the human system.

THE END.

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